Infor CloudSuite Industrial Enterprise Solution Overview

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Chapter 1: Overview

This multi-tenant Infor CloudSuite Industrial Enterprise solution is available through a subscription-based (SaaS) delivery model from Amazon Web Services (AWS). It includes core capabilities as well as optional or recommended add-on capabilities, all delivered in the cloud.

This diagram shows the products that are available for this solution:

CORE ANALYTICS

Birst, including Analytics Platform
LN Analytics

ANALYTICS

HORIZONTAL ADD-ONS

Birst Enterprise

CORE APPLICATIONS

LN CE
Implementation Accelerator for Industrial

ERP

INDUSTRY ADD-ONS

CPQ Enterprise Configurator
CPQ Enterprise Quoting
Factory Track
HR Talent
LN Mobile Applications
Supplier Exchange

ADDITIONAL ADD-ONS

EAM
EDI Exchange
Expense Management
d/EPM
LN Mobile Service
PLM Discrete
Rhythm for Commerce
WMS

CORE INFOR OS

Ming.le
ION, including Data Lake
Document Management
Localization Services

INFOR OS
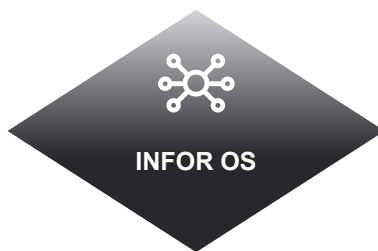
HORIZONTAL ADD-ONS

Document Capture

ADDITIONAL ADD-ONS

Governance, Risk and Compliance

Chapter 2: Core solution

The core solution includes these applications that are used by companies in your industry.

Applications

These business capabilities are always included in this solution.

LN CE

Infor LN CE is the backbone Enterprise Resource Planning (ERP) component that provides the core functionality to support the business processes and functions in an organization.

LN CE is a global ERP solution that supports multinational requirements and complex organizational structures such as multisite and multicompany environments.

LN CE is a flexible, modular solution for industrial enterprises with a focus on discrete manufacturing. The manufacturing functionality supports various types of manufacturing, including make to stock, make to order, engineer to order, configure to order, and assemble to order. Under assemble to order, the items in an order can be assembled individually, in combination, or all at one time. LN CE includes various modules such as financials, sales, purchasing, logistics, freight, and service.

LN CE complies with many national and international business practices and legal requirements, supports multiple currencies and languages, and helps to build successful international operations in today's global environment.

Implementation Accelerator

Infor Implementation Accelerator (IA) is a streamlined implementation methodology, managed by Infor Consulting Services (ICS), that includes a solution to integrate all of your core processes. IA can be the final step, or the first step, in an ongoing process improvement. As your business changes and grows, the scale and scope can be extended and other applications can be integrated.

IA packages best practices in a repeatable, directive implementation approach to get you up and running on the core solution, with predictable costs and defined scope.

IA includes a preconfigured company structure, which is the foundation for the implementation of the CloudSuite and is duplicated to fulfill training, migration, and production environments. The company structure is loaded with predefined business processes, which provide you with a graphical view of the business flow across the company.

These steps summarize the implementation process with IA:

1 Start with the preconfigured company structure.
2 Confirm that the predefined and preconfigured business processes work for you.
3 Load your legacy data.
4 Start testing and validating the business processes.
5 Extend data sharing between companies as required.

Implementation Accelerator for Industrial

Infor Implementation Accelerator for Industrial is a preconfigured solution targeted at industrial manufacturing companies. This Implementation Accelerator solution provides a foundation that covers a company's core needs and processes. It also is the basis for future growth and improvements.

Using this accelerator reduces and streamlines the steps required to implement this solution. It helps you to save time and money, and takes the guesswork out of deploying the CloudSuite Industrial Enterprise solution for industrial manufacturing companies. The result is an affordable solution that can meet today's requirements and potential for tomorrow. It also provides the possibility for a faster ROI and time-to-benefit that is measured in weeks instead of months or years.

These process categories (level one) with one or multiple cross functional end-to-end business processes are included:

- Idea to Offering
- Procure to Pay
- Market to Order
- Order to Cash
- Plan to Deliver
- Record to Report
- Service to Cash
- Issue to Resolution

The process categories include a preconfigured set of business processes of these types:

- Initial company structure preparation for business process testing
- Industry-specific transactional business processes

The business processes cover this core functionality:

- Customer Relationship Management
- Sales Order Management
- Product Development
- Sourcing and Procurement
- Planning and Scheduling
- Materials Management

- Production Management
- Call, Warranty, and Claim Management
- Quality Management
- Financial Management

Analytics

These core analytics applications are always included in this solution.

Birst

Infor Birst is a cloud-based end-to-end analytics and business intelligence platform for the connected enterprise with patented data refinement technology that delivers relevant insights for both centralized and decentralized teams in less time with fewer resources.

Analytics Platform

With Infor Analytics Platform, you can achieve a new level of insight with pre-built, industry-specific best practice metrics and role-based dashboards and reports for various levels of your organization. As part of its industry application solutions, Infor provides a business intelligence experience that is embedded into the core of the application.

Using Analytics Platform with LN CE

Analytics Platform offers these capabilities with LN CE:

- Pre-built, industry-specific data model with Modeler Prepare and Relate.
- Interactive and responsive dashboards with drag-and-drop creation, drill-anywhere, and filtering capabilities.
- Interactive analytic dashboards with Birst Mobile for iOS and Android.
- Ad hoc data discovery and visual analysis with Visualizer.
- Pixel-perfect report writer with Designer for advanced report creation.

LN Analytics

Infor LN Analytics refers to the content built with Birst. LN Analytics provides cloud users with strategic and tactical business intelligence by generating measures for analytic data or reports.

Key Performance Indicators (KPIs) provide future-oriented measures, which direct you to critical areas of business performance that need improvement.

Industry-specific analytics content is available for these key areas:

LN Analytics Foundation

LN Analytics Foundation displays key analysis data, from the Manufacturing (job shop), Finance, Procurement, and Sales business domains, in dashboards, with drill-downs and links to further detail as required.

LN Analytics Program Cost Ledger (PCL)

LN Analytics Program Cost Ledger (PCL) displays key analysis data, from the Project Contracts and Project business domain, in dashboards, with drill-downs and links to further detail as required.

LN Analytics Quality Management (QM)

LN Analytics Quality Management (QM) displays key analysis data, from the Quality business domain, in dashboards, with drill-downs and links to further detail as required.

Using LN Analytics with LN CE

LN Analytics offers these capabilities with LN CE:

Extracting and transforming data

The process of extracting and transforming data is done in several spaces, each with a specific purpose. The content is moved through packages to different spaces as needed. LN Analytics contains a staging space for extraction of data from Data Lake, a space for dimensions that are shared across the solution, fact spaces, and a consumer space for reports and dashboards.

Dimensions that are shared across the solution are referred to as conformed dimensions. Fact spaces include fact tables as well as the dimensions that are only used within a specific domain. Fact spaces are named after the domain that they support.

- Reports: LN Analytics provides reports that display a trend for a single KPI, and reports that allow the user to analyze one or several metrics in a chart or a table. Reports showing a trend for a single KPI are referred to as KPI charts.
- Dashboards: Dashboards enable a single view of several KPIs that are relevant to a specific business process. They present varied information such as summaries, key trends, comparisons, and exceptions through charts and tables with metrics.

  The dashboards delivered are designed to cover a business process within a single domain in a company, as well as cover a specific topic within a domain in the company. Several dashboards in the various business domains are designed based on this logic. These dashboards are built from a number of dashlets, that can be a KPI object, KPI chart, or any other type of report.

  Each dashboard is delivered with a set of filters that enable the user to drill into the data presented in the various reports on the dashboard. Filters that are based on conformed dimensions are shared across dashboards. LN Analytics provides dashboards designed for a specific topic as well as overview dashboards with drill-across to target dashboards for a more detailed analysis.

LN Analytics Foundation dashboards

These dashboards are offered for the Sales business domain:

- Sales Manager
- Sales Analyst
- Perfect Orders
- Punctuality
- Sales Order Line Detail
- Opportunity Manager
- Opportunity Analyst
- Opportunity Detail
- Opportunity Item Detail
- Sales Contract Manager
- Sales Contract Analyst
- Sales Contract Risk
- Sales Contract Line Details
- Sales Contract Line Analysis Details
- Sales Schedule Manager
- Sales Schedule Analyst
- Sales Schedule Line Details

These dashboards are offered for the Manufacturing business domain:

- Job Shop
- Operation Cost
- Operation Time
- Order Lead Time
- Order Rejects
- Perfect Orders
- Produced Items
- Punctuality
- Material Details
- Operation Details
- Order Details
- Total Cost Details

These dashboards are offered for the Procurement business domain:

- Purchase Manager
- Purchase Analyst
- Purchase Delivery
- Purchase Order Line Details

These dashboards are offered for the Service business domain:

- Warranty Transactions
- Service Contract Quote
- Contract Financial Performance

- Service Contract Dashboard
- Overall Service Contract Performance
- Contract Cost by Order and Cost Type
- Serialized Item Warranty Coverage
- Service Call Management
- Service Order Management
- Service Order Activity
- Service Engineer Assignment

These dashboards are offered for the Finance business domain:

- Finance KPIs
- Assets and Liabilities
- Profit and Loss
- Cash Flow
- Trial Balance – Taxonomy
- Trial Balance
- Trial Balance – Dimensions
- Trial Balance – Quantities

LN Analytics PCL dashboards

These dashboards are offered for the Project business domain:

- Project Dashboard
- Project Overview
- Overall Project Performance
- Budget vs Actuals by Project
- Budget vs Actuals by Project Structure
- Budget vs Actuals by Project Activity Details
- Budget vs Actuals by Project Element Details
- Budget vs Actual Hours by Project
- Budget vs Actual Hours by Project Structure
- Budget vs Actual Hours by Project Activity Details
- Budget vs Actual hours by Project Element Details
- Time Phased Project Performance
- Time Phased Project Performance by Activity
- Time Phased Project Performance by Activity Details
- Time Phased Hours by Project
- Time Phased Hours by Project Activity
- Time Phased Hours by Project Activity Details
- Project Performance
- Project Performance by Project Structure
- Project Performance by Project Activity Details
- Project Performance by Project OBS Details
- Cost Forecast by Project

- Cost Forecast by Project Structure
- Cost Forecast by Project Activity Details
- Cost Forecast by Project Element Details
- Hours Forecast by Project
- Hours Forecast by Project Structure
- Hours Forecast by Project Activity Details
- Hours Forecast by Project Element Details
- Cost Transactions by Buy-from Business Partner
- Project Activity Schedule
- Project Milestone Schedule
- Project Contract Overview
- Project Contract Revenue vs. Cost Details
- Project Contract Cost
- Project Contract Profitability
- Project Contract Overdue
- Project Contract Cash Flow by Period
- Project Extension

LN Analytics QM dashboards

These dashboards are offered for the Quality business domain:

- Order Inspection
- Order Inspection Aging Analysis
- Defective Parts per Million by Origin
- Inspection Order
- Inspection Order Reject Reason
- Inspection Order Aging Analysis
- Process Capability Chart
- Quality Control Chart
- Item Quality Analysis
- Non Conformance Report
- Non Conformance Report Aging Analysis
- Non Conformance Material Pareto Analysis
- Non Conformance Non Material Pareto Analysis
- Failure and Action Analysis
- Failure Pareto Analysis
- Failure and Action Pareto Analysis
- Corrective Action Plan
- Corrective Action Plan Aging Analysis

Infor OS

Infor OS is a technology platform that supports fully integrated, industry-specific solution suites with mobile-first design, a consumer-inspired user experience, and science-driven analytics.

It leverages the convergence of information, analytics, cloud computing, mobility, and social business.

This platform includes these products:

- Infor Ming.le™
- Infor ION
- Infor Data Lake
- Infor Document Management
- Infor Localization Services

Infor Ming.le

Infor Ming.le is a web-based application framework that provides a common user interface for Infor applications, third-party applications, and in-house developed applications integrated through Infor ION. It is a centralized platform for social collaboration, business process improvement, and contextual analytics.

Infor Ming.le provides drill-back capability so that users can navigate across the applications to track transactions, the transfer of data, and report updates. Additionally, Infor Ming.le provides an infrastructure for sharing content with context applications.

Infor Ming.le uses homepages, configurable by users to organize information and activities at a high level to focus on critical areas of concern.

Within Infor Ming.le, you can use ION API, a managed API layer across all applicable Infor and non-Infor APIs, allowing existing APIs to be presented in a standardized, managed, and controllable way.

Infor Ming.le uses Infor Federation Services (IFS) for centralized authentication.

Infor Ming.le is available as a mobile app, supported by iOS, Android™, and Windows Mobile operating systems.

Infor ION

Infor ION is a business process management platform that integrates applications, people, and business processes. The ION platform converts data into the common language of standardized XML to enable disparate business systems such as Infor products, third-party applications, and in-house developed applications to share information.

ION simplifies the connectivity and data sharing across the connected applications. It enables users to configure a routed infrastructure, set up workflows, design and activate business event monitors, and manage tasks and alerts.

Infor Data Lake

Infor Data Lake is a data repository that provides high-volume, scalable object storage for real-time data from across your enterprise systems, disparate applications, people, and IoT infrastructure.

Using ION to connect your data sources, Infor applications move content into Data Lake and use other consuming applications to query and navigate Data Lake for content related to specific business cases.

Infor Document Management

Infor Document Management (IDM) is an integration platform that enables you to take advantage of document solutions already in use within your organization.

Document Management is used to integrate your documents with your business processes and to provide a central repository for them. Soft links are used, based on document metadata, to provide integration between your documents and your Infor ERP solution. You can view a document from within the context of your application, or click a document link to retrieve the document from the central repository.

Document Management supports the entire lifecycle of your business documents, from input through storage, retrieval, and sharing.

Infor Localization Services

Infor Localization Services work with Infor OS to extend the footprint of the core ERP. A global localization platform is available that is updated in response to changes in countries' legal or cultural requirements.

These types of proprietary formats are addressed:

- Electronic submissions, which are processed in Infor Localization Services Platform (LSP).

  LSP features help customers meet the local regulatory, statutory, and cultural requirements of a country. LSP uses ERP data and stored business rules to create submissions. Depending on the type of function, the data can be automatically transformed to proprietary formats or manually prepared for reporting within the service. With manual preparation, users can confirm what is sent to the external agency prior to submission. The submission is then tracked and logged for audit purposes, with responses returned to the ERP as required.

- Electronic messages (GEMS), which are processed in ION.

  GEMS is a black box solution within Infor ION that automatically transforms BOD data into a proprietary message. LSP is not used.

Using Infor OS with LN CE

LN Cloud provides solution-specific capabilities for Infor OS.

Homepages and widgets

You can create your own homepages in Infor OS. LN CE provides several predefined widgets, which you can add to your Infor Ming.le homepages.

The homepages can be personalized based on your requirements. You can configure each homepage to display different widgets. For example, on your Sales homepage, you can add widgets such as Sales Quotation Lines, Sales Contract Lines, and Sales Order Lines.

User management

Because Infor Ming.le is the system of record for users, you must set up users in Infor Ming.le. The users are then synchronized through BODs with other BOD-enabled applications in the Infor Ming.le portal. After the users are synchronized with your application, you can continue the user setup in each application.

ION

Integrations between LN CE and other applications use ION to send and receive BODs.

Data flows are preconfigured in ION Desk between LN CE and other provisioned applications, so the appropriate data can automatically be sent between the applications when the flows are activated.

When ION monitors, workflows, and activation policies are activated, users can receive alerts, tasks, or notifications. Users receive the alert, task, or notification on their Infor Ming.le page, in the Infor Ming.le mobile application, or by email.

Data Lake

LN CE sends table schemas (meta data) to Data Catalog and master and transactional data to Data Lake. The data can then be consumed by other applications such as Birst.

All data from LN CE can be made available in Data Lake, but for each integration, different data sets (lists of tables) are predefined by Infor.

Tables in the dataset are initially loaded into Data Lake during configuration. Later, when users update data in LN CE that has an underlying table included in the data set, the data is published to Data Lake. The data is then available for use by applications that access the Data Lake.

Document Management

LN CE can send reports and documents to Document Management for storage. Then, when users view a record in a session, links to the appropriate documents are shown in the Related Information context app. If there are multiple documents, you can navigate through them. The documents can be displayed as a preview or as a list.

You can search the IDM repository for documents by filename, originating user, and date. You can also search for documents using other meaningful attributes, such as purchase order number or invoice number, if those attributes are set up for the document type in IDM.

Localization Services

Localization Services with LN CE offers these capabilities:

LSP

LSP can produce these types of files, using LN CE data:

- e-Auditing provides a set of electronic submissions that allow auditing information to be collated, checked, and sent to the requesting government or accounting organization.

- e-Invoicing provides a set of electronic submissions that are used to create electronic sales invoices that can be sent directly to customers. Electronic supplier invoices can also be transferred to the ERP.
- Statutory reports.

LN CE can send sales invoices and customer payment receipts to LSP for (Mexican) CFDI processing. LSP generates the CFDI XML formats, communicates with the authorized service provider and returns the approvals or rejections to LN CE.

Additionally, LN CE can send the chart of accounts, ledger balances, and journal transactions to LSP for e-Auditing. LSP generates the e-Auditing files for chart of accounts, trial balance and journals.

GEMS

GEMS can produce the Banking file type for use with LN CE. Banking includes a set of electronic messages. These messages enable supplier payments and direct debits to be created for banks and other financial institutions, such as clearing houses, according to the standard of an organization, government, or financial institution. Bank statements sent by the bank can also be consumed by the ERP for payment matching and reconciliation.

LN CE can send supplier payments and direct debits to GEMS through the CreditTransferBOD and DebitTransferBOD. GEMS transforms the BOD data into a proprietary message that can be communicated to the bank. Supported formats for supplier payments are pain.001.001.03, pain.001.001.03 SEPA, and North American ACH. Supported formats for direct debits are ISO20022 pain.008.001.06 and SEPA pain.008.001.02.

GEMS can receive bank statements and transform the proprietary bank statement messages to a BOD. LN CE can consume the BOD and generate the Electronic Bank Statement data. Supported formats for bank statements are camt.053.001.02 and camt.054.001.02.

Chapter 3: Common add-on applications

To extend your solution with more advanced capabilities, you can add these optional applications. These applications might incur usage-based pricing.

Industry add-on applications

Industry add-ons are additional applications that are frequently requested by customers in your industry and can deliver significant value.

CPQ Enterprise Configurator

Infor CPQ Enterprise Configurator software allows embellishment company manufacturers to streamline the sale and production of their configured products.

The CPQ Enterprise Configurator includes these functions:

- Capture of knowledge from product experts in easily maintained product models.
- Publication of product models from the central repository to people and applications.
- Guidance of users through the selection of product features, options, and dimensions.
- Calculation of price, cost, and other information, such as performance characteristics or engineering specifications based on the product configuration.

The CPQ Enterprise Configurator has a web services integration to Infor LN CE. The purpose of the integration between LN CE and Infor CPQ Enterprise Configurator is to provide LN CE customers with a graphical configurator. The communication is developed to integrate with the existing web services on the CPQ side and provides these features:

- Interactive communication
- Background configuration
- Retrieval of configuration from an external source

Using CPQ Enterprise Configurator with LN CE

The CPQ Enterprise Configurator is a visual configurator that is part of the Infor CPQ product. When the CPQ Enterprise Configurator is integrated with LN CE, the modeling and configuration capabilities of CPQ Enterprise Configurator are combined with the sales order management and manufacturing capabilities of LN CE. The CPQ Enterprise Configurator can be used for configured products in Assemble to Order as well as Job Shop environments.

These roles are involved in the integration:

- Product engineer: Maintains the products and models.
- Sales manager: Handles the sales quotations and orders.
- Project engineer: Deals with estimates, budgets, and warehouse requests.

For the sales manager and the project engineer, CPQ Enterprise Configurator with LN CE offers these capabilities:

- Configuration of a product for a customer order:

   The sales manager or project engineer selects a product and specifies the product options. This is called interactive configuration.

- Receipt of an order for a configured product:

   A customer or dealer sends a sales order BOD message to order a product. This request includes the options chosen for the product, which are processed by the configurator and stored in LN CE. This is called background configuration.

- Reconfiguration

   The sales manager or project engineer selects a product variant and selects the **Configure** option. The configuration screen displays previous choices. After making the required changes, the updated configuration is stored in both the CPQ Enterprise Configurator and LN CE.

Orders in LN CE can result from order entry or from receiving a BOD message. The BOD can come from these applications:

- CPQ Enterprise Quoting:

   For a quote, the configuration process is performed in EQ, and the configuration IDs are sent with the sales order BOD message. LN CE uses these IDs to have the configuration available for production.

- Another application, such as a front office application or dealer portal:

   The BOD message can include a customer order for a product with a list of chosen options.

CPQ Enterprise Quoting

Infor CPQ Enterprise Quoting (EQ) is a comprehensive pricing, quote generation, and ordering system for selling configured and standard products through all your channels, including dealers and distributors. Products are configured and added to quotes through EQ's integration with the CPQ Enterprise Configurator. The quote can contain both discrete and configured items

CPQ Enterprise Quoting guides sales people to available items and configurable product features,options, and dimensions, while ensuring that configurations represent valid offerings.

Product visualization helps sales reps confirm their products, features, and option selections during configuration.

Dynamic pricing instantly produces a configuration-specific list price, dealer cost, and quoted selling price.

Your company has a single point of control for sharing product, customer, and order information with all back-office manufacturing and business systems, including collaborative demand and supply chain systems. Therefore, customers can be sure that everyone in the value chain is working with the most up-to-date information.

The solution is user friendly, and customers can tailor the quoting and selling experience to match their market and unique needs. Detailed reporting and analytics provide sales managers with increased visibility into the performance of their direct and dealer sales organizations.

Using CPQ Enterprise Quoting with LN CE

In CPQ Enterprise Quoting, dealers create quotes that include order placement terms and items. After customers accept quotes, an order is created in CPQ Enterprise Quoting and a sales order is also created in LN CE. The sales order in LN CE is then accepted or rejected. If it is accepted, the sales order must be approved, shipped, invoiced, and closed in LN CE. The dealer can use the order screen in CPQ Enterprise Quoting to view the status of the sales order in LN CE.

For configurable items, the price provided in CPQ Enterprise Quoting is accepted by LN CE.

For non-configurable items, LN CE provides a customer price web service that simulates the price. Integration with this web service is not provisioned and must be manually configured. After the web service has been configured, CPQ Enterprise Quoting calls this web service when the dealer enters a line that has a non-configurable item. The LN CE price is shown in CPQ Enterprise Quoting. When the quote is finalized, the price is recalculated by LN CE. If conditions did not change between the moment of quoting and ordering in LN CE, the price in the order is the same as the simulated price.

To finalize a quote, users must perform Convert to Order and Place Order in CPQ Enterprise Quoting. The CPQ Enterprise Quoting order number with the associated fields is sent to LN CE. Sales orders must be approved in LN CE.

The sales order, shipment, and invoice documents are automatically published by LN CE. The sales order status is shown on the **Orders** page in CPQ Enterprise Quoting.

Factory Track

Infor Factory Track is a comprehensive production automation solution designed specifically for the manufacturing industry. Manufacturers can manage inventory, track labor, and automate the time and attendance operations. The solution is built on Mongoose,so you can easily enhance and extend its features.

Factory Track includes these modules:

- The Shop Floor module is a work center automation solution that provides paperless manufacturing capabilities. Shop Floor delivers a kiosk-based solution that can be accessed by multiple production floor operators to track labor, report job operations, and track work-in-progress and finished goods.
- The Warehouse Mobility module delivers a real-time inventory management solution with barcode support for ease of use. Using Warehouse Mobility, manufacturers can automate various inventory operations, such as receiving, material movement, cycle counting, and issuing of material.
- The Time Track module is a comprehensive time and attendance application. Because nearly every manufacturer has specific attendance and labor rules, Time Track provides a configurable solution that allows organizations to set up rules concerning attendance and labor, such as shift duration, labor management, absence management, and timesheet tracking.

Using Factory Track with LN CE

Factory Track delivers end-to-end manufacturing automation capabilities that cover inventory and production processes, from the time raw materials are received in the warehouse, through the assembly floor, all the way to shipping finished goods.

Factory Track with LN CE offers these capabilities:

- Payroll automation: Automate labor tracking and attendance.
- Inbound and/outbound logistics: Accelerate material movement, improve putaway, and obtain timely and accurate information about purchase receipts and transfers.
- Container handling: Simplify material handling with container and handling unit support.
- Track and trace: Gain better visibility into units, including components, throughout the manufacturing value chain.
- Overtime rules: Take advantage of flexible attendance rules, along with configurable overtime and double-time options.
- Project support: Collect engineering time on projects via elapsed time data capture.
- Job material transactions: Automate purchasing and establish a realistic safety stock level to optimize job material issue, work-in-progress, and other key transactions.
- Labor data collection: Use handheld devices and shop floor kiosks to automate labor collection.
- Barcode handling: Standardize inventory operations with barcode support. Create barcode templates for maximum efficiency.
- Lean manufacturing support: Handle inventory replenishment requests for Kanban items through purchase, production, and transfer orders.

Shop Floor module

This module offers a touch-screen interface for the activities in LN CE. It enables employees to work on selected operations, report the start and end of activities and maintain data related to material that is issued, reported, completed or rejected. This functionality works in these operation modes for LN CE:

- **Supervisor**
- **Operator/Machine**

Warehouse Mobility module

This module is an online extension of LN CE's inventory and production capabilities. It provides a simple mobile interface to automate transactions using barcode scanners, and can address a wide range of data collection needs within the warehouse and shop floor. These are some of the advanced features that are included:

- Inventory: Move, count, and adjust inventory.
- Inbounding: Receive, putaway, approve, and cross-dock incoming goods.
- Outbounding: Pick, confirm, pack, and ship orders of all types.
- Production: Report operations and orders, track serial numbers, issue, and return materials.
- Kanban: Request and replenish Kanban bins.
- Handling units: Create, link, unlink, or split handling units.

With Warehouse Mobility, customers can improve inventory movements and inbound and outbound logistics. Tools are provided for handling unit inventory management and labor tracking. Enhanced shipping capabilities are available to consolidate multistep processes and streamline workflows of pick, pack, and ship operations.

Customers can use the Factory Track Warehouse Mobility Repetitive transactions to perform repetitive activities in LN CE.

Time Track module

The Time Track module combines configurable attendance rules with labor data collection. The integration provides supervisors and line managers visibility into employee clock-ins, attendance exceptions, and timesheet summaries. Additionally, it offers absence management capabilities. The module is typically used by attendance terminals, shop floor terminals, supervisors, administrators, payroll users, and engineering employees.

HR Talent

Infor HR Talent is often the core application for your organization and employee system of record resource data.

Using the Infor HR Talent application, you define structure, employees, and jobs for comprehensive personnel administration.

These modules are included in the application:

- Absence Management
- Organization and Person Management

Using HR Talent with LN CE

The integration between HR Talent and LN CE supports the exchange of personnel data.

In the employee data synchronization process, this information is passed from HR Talent to LN CE:

- Employee skill codes, competencies, credential and license codes, and absence and leave types.

  In HR Talent, the qualifications of employees are classified into skills, competencies, and credentials. Each employee can be linked to more than one skill, competency, and credential.

- Basic information about each employee such as employee ID, name and address.

  This master data must be manually synced between HR Talent and LN CE:
  - Position (HR Talent) and Trade Group (LN CE)
  - Cost Center
  - Work Schedule
  - Title
- Time off requests, approvals, and updates.

A personnel BOD message is published for every change in the employee data in HR Talent. Various employee statuses are available in HR Talent, but there is no status information in LN CE. When the employee is terminated in HR Talent, the last employment date is updated in LN CE, which means the employee is inactive.

A BOD message is published when a time off request or leave of absence is approved or canceled in HR Talent. In LN CE, time off requests and leaves of absence are consumed in work assignments. Absence is used only to facilitate time entry, not for employee planning.

LN Mobile Applications

Infor LN Mobile Apps enable users to access critical LN CE data on mobile devices. The users can view and modify the LN CE data on these mobile devices for various business purposes. The mobile applications receive real-time data and enable users to respond immediately to important tasks, thereby improving the efficacy of the process and accelerating the productivity.

The LN Mobile Apps are ION API authorized apps for Infor OS and are available for iOS and Android devices. The apps are Mobile Device Management (MDM) enabled to make them more secure.

Using LN Mobile Apps with LN CE

These LN Mobile Apps are available with LN CE:

LN Customer 360

This app offers these capabilities for users:

- Access customers, contacts, activities, opportunities, sales orders, quotes, project contracts, service calls, service orders, maintenance sales orders, and claims.
- Add new customers, activities, and opportunities.
- Upload and download attachments through IDM.

LN Call Requests

This app offers these capabilities for users:

- Raise a call request at any time and at any place.
- Display a list of call requests created by the user for the current month.
- Use a diagnostic tree, which is an information structure that contains a set of questions and expected answers that helps the user to solve problems.
- Upload and download attachments through IDM.

LN Hours Registration

This app offers these capabilities for users:

- Register hours for a specific job, for these origins in LN CE: Project, Project (PCS), Production, Service, Work Order, and General Hours.
- Display only the origins that are relevant to a user's work.
- Differentiate between regular and overtime hours.
- Save favorite time entries for future use.
- Receive a notification if a time sheet is not filled completely.
- Upload and download attachments through IDM.

LN Non-Conformance Reporting

This app offers these capabilities for users:

- Report and review the non-conformance from the location.

  Non-conformance or non-conformity is defined as the non-adherence to or deviation from a specification, standard or expectation. Non-conformance is product specific when a product does not meet the specification or standard. Non-conformance is process specific when one or more of these criteria are met:

  - The operator does not adhere to the standard operating procedure
  - The material is not handled in a correct way
  - The material is not stored according to the approved procedure
- Set and modify the default settings.
- Specify or scan the lot and serial number of the item. The serial number/lot number can be scanned using QR or BAR codes.
- Attach the image of the item or surrounding as evidence of the non-conformance.
- Review all the assigned non-conformances.
- Review all the open (non-dispositioned) non-conformances for the specified period.
- Search all the non-conformances that are assigned or not assigned to the user.
- Report non-conformances in offline mode.
- Upload and download attachments through IDM.

LN Quality Inspections

This app offers these capabilities for users:

- Review the assigned inspection orders from the inspection location, such as the Shop Floor, Raw Material Warehouse, and Finished Goods Warehouse.
- Record the inspection and testing data from the inspection location. If the device is not connected to the internet, the data is synchronized later with LN CE when the device is connected.
- Set or modify the default settings.
- Review all the assigned inspection orders.
- Review all the open inspection orders for the specified period.
- Specify the test data results based on the item, characteristics, or test sequence (online and offline).
- Specify or scan the lot or serial number of the item. The serial number and lot number can be scanned using QR or BAR codes.
- Specify the test data results by quantity or quality.
- Upload and download attachments through IDM.

LN Resource Assignments

This app offers these capabilities for users:

- Check the daily assignments for these origins in LN CE: Project, Job Shop Order, Service Order, Work Order, Project (PCS), Non-Conformance Report, Corrective Action Plan, Inspection Order, FRACAS.
- View the assignments in a weekly or monthly format.
- Accept or reject service order assignments.
- Communicate the user location when the assignment is started or completed. This updates the GPS location of an employee in LN CE. Based on the latest available user location, customers can schedule the next task near this geolocation. Users can check the current location on a map.
- Push hours to the Hours Registration app. This feature is applicable only for these origins:
  - Project
  - Job Shop Order
  - Project (PCS)
- Upload and download attachments through IDM.

LN Service Requests

This app offers these capabilities for users:

- Raise a service request at any time and at any place.
- Display a list of service requests created by the user for the current month.
- Use a diagnostic tree, which is an information structure that contains a set of questions and expected answers that helps the user to solve problems.
- Upload and download attachments through IDM.

Supplier Exchange

Infor Supplier Exchange is an advanced, web-enabled supply chain management solution that supports effective collaboration with your suppliers and efficient execution.

It helps you to reduce supply chain costs and inventory, and to increase operational efficiency. Supplier Exchange provides visibility over your supply chain, streamlines your communications with partners, and creates powerful, real-time data connections.

Supplier Exchange includes these features:

- Supply chain management

  Event management, alerts, supplier fulfillment, shipping, receiving, payment, outside processing, premium freight, global track and trace (GTT) and document management.

- Automotive and discrete replenishment

  Procurement methods: onboarding of new suppliers, requests for quotation (RFQs), supplier-managed inventory (SMI), releases, purchase orders (POs), proposed purchase orders, eKanban, and supplier invoices.

  Supplier fulfillment: advanced shipping notices (ASNs), bar code labels, shipping documentation.

- Supplier performance

  Supplier ratings, supplier action plans, corrective action, root cause, defective material notices (DMNs), delivery performance reviews (DPRs), and production part approval processes (PPAPs).

- International features

  Support for multiple currencies and multiple languages.

Supplier Exchange with LN CE offers these additional capabilities:

- Event management and alerts
- Shipping
- Receiving
- Global track and trace
- Supplier performance
- Defective material notices
- Production part approval process
- Delivery performance reviews
- Parts per million
- Premium freight
- Outside processing
- Replenishment strategies

Using Supplier Exchange with LN CE

Supplier Exchange with LN CE supports these business processes:

Supplier onboarding process

With supplier onboarding, a potential supplier can be invited to become an actual supplier. When this process is completed in Supplier Exchange, a new business partner is created in LN CE with the four supplier roles. This includes the creation of addresses for each role, of contacts related to the business partner, and of the primary contact for the buy-from role (only).

The supplier onboarding process supports these capabilities:

- Onboarding invitations
- Public registrations to join a buyer's supplier network
- Questions about company information, contacts, banks, categories, certificates, and agreements
- Sites, surveys, application approval and rejection process
- Onboarded supplier information integration with LN CE
- Supplier self information update and integration with LN CE

Request for quotation process

The request for quotation process includes these steps:

1   Requests for quotation are created and printed in LN CE, and synced to Supplier Exchange. In Supplier Exchange, suppliers can view the RFQs they must take action on.
2   After receipt of the RFQ, the supplier can specify responses or a no bid which can be sent to LN CE. The buyer can log into Supplier Exchange to review responses and negotiate. When the buyer or supplier accepts a negotiation proposal, the request for quotation response is updated in LN CE.
3   In LN CE, the buyer can approve or reject the RFQ response. If the RFQ response is rejected, LN CE updates the supplier about the lost bid line. If the RFQ response is approved, the approval is updated to Supplier Exchange.
4   The RFQ response can be converted to a purchase order, purchase contract, price book, or a combination of these. During the conversion process in LN CE, the Supplier Exchange Response Status is updated. If the response is converted to a purchase order, the Purchase Order is also updated on the response.

Standard purchase order process

The standard purchase order process includes these steps:

1   Purchase orders are created in LN CE, synced to Supplier Exchange, and updated from Supplier Exchange to LN CE.
2   After receiving the purchase order, the supplier can start the negotiation process or directly start the shipping procedure. When the buyer logs into Supplier Exchange to accept the proposal or the proposal is automatically approved, the purchase order is updated in LN CE.
3   Based on all open purchase order lines, the supplier can specify a shipper, which is published as an Advanced Ship Notice (ASN) to LN CE.
4   In LN CE, the ASNs are used during the receipt process. The receipt information is used in Supplier Exchange to match against the ASN.
5   Receipt delivery information is processed in LN CE and synced to Supplier Exchange.
6   Returning goods to the supplier is registered in LN CE as a purchase order with a return type. Based on this order, LN CE ships the goods to the supplier. To notify the supplier of the upcoming shipment, supplier RMA information is synced from LN CE to Supplier Exchange.

Kanban and SMI-based purchase order process

The Kanban and SMI-based purchase order process includes these steps:

1   The supplier determines when it is required to supply the warehouse.
2   LN CE publishes inventory information to Supplier Exchange based on which Supplier Exchange analyzes when the supply is needed.
3   Based on the settings in Supplier Exchange, the timing and the quantity of the next shipment is automatically determined.
4   The supplier is notified about the demand, and a shipper is created and published as an ASN to LN CE. Because the process is initiated by the supplier and is not based on a purchase order, no purchase order reference is linked to this ASN.
5   When the receipt process is started, a purchase order is generated for this type of ASN line. This purchase order is not used for the logistical process, but for the internal invoicing process. The order is published to Supplier Exchange, after which it is closed by the receipt message.

Schedule-based process

The schedule based process includes these steps:

1   The purchase releases created in LN CE are published to Supplier Exchange when the status of the release is `Sent`.
2   In Supplier Exchange, schedules are created.
3   Based on the purchase schedules, the supplier can create ASNs in Supplier Exchange.
4   Based on the purchase schedules, the supplier can specify a shipper, which is published as an Advanced Ship Notice (ASN) to LN CE.

Horizontal add-on applications

Horizontal add-ons are applications that deliver additional value across industries.

Birst Enterprise

With Infor Birst Enterprise, you can enable data-driven decision-making and deliver better outcomes across the enterprise. As part of Infor's modern data architecture, Birst enables any user to take their analysis in any direction. With a flexible and business-centric approach to managing data, Birst is secure, scalable, and adaptable. Infor recommends Birst Enterprise for all industry applications.

Using Birst Enterprise with LN CE

In addition to all of the features of Infor Analytics Platform, Birst Enterprise with LN CE offers these capabilities:

•   Access to 3rd party cloud or on-premises data sources with Modeler Connect and Live Access.
•   Blend analytics across Infor applications and pre-built content with Networked Analytics.
•   Automated personalized dashboards with AI-driven Smart Insights.

- Self-service data prep on 3rd party data.
- Access to the business semantic layer from 3rd party applications with Open Client Interface.
- Analytics on the go, with Offline Mobile.
- Ability to extend business intelligence and analytics to more users beyond CloudSuite users.
- Ability for decentralized teams to create new analytics projects with centralized governance.
- • Transfer of analytics to customers, partners, and suppliers

Document Capture

Infor Document Capture enables you to convert a high volume of unstructured document data from multiple formats into structured information by using machine learning and analytics.

The automated conversion of document data categorizes each document by type and captures and stores relevant data for each document, providing greater efficiency, productivity, and a more detailed analysis of your business processes within Infor enterprise resource planning (ERP) solutions.

Using Document Capture with LN CE

Document Capture (Ephesoft Transact) is used to scan purchase invoices and to convert the scanned invoices to purchase invoices in the Accounts Payables module of LN CE Financials.

Ephesoft Transact provides an easy way to process incoming documents, such as scanned documents and email attachments, and extract content from them by performing various steps such as import, page processing, document assembler, document review, extraction, data validation, and export.

For supplier invoices, this business flow is supported:

1 The integration starts with a scanned paper invoice, or an email with an invoice attached. For example, a .pdf-file.
2 Infor Document Capture extracts information from the invoice. After successful validation, the invoice image is stored in Infor Document Management (IDM) together with a unique ID (Correlation ID/GUID). This GUID is transferred to LN CE to enable traceability to the correct invoice image in IDM. Infor Document Capture creates a Sync.CaptureDocument message, which is an IDM-specific BOD message.
3 In ION Desk, a mapping is used to transform this message into a Load.SupplierInvoice message, which is routed to LN CE.
4 LN CE stores the details of the Load.SupplierInvoice message in the **Received Purchase Invoices** table. You can then use the **Process Payables Workbench (tfacp8350m000)** to validate, register, match and approve the purchase invoice.

Chapter 4: Additional add-on applications

Additional add-ons are differentiating applications that add value but generally should be considered only after initial implementation. These products might incur usage-based pricing.

EAM

Infor EAM is a configurable asset management solution. EAM enables you to improve capital asset management in ways that increase reliability, enhance predictive maintenance, ensure regulatory compliance, reduce energy usage, and support sustainability initiatives.

EAM provides you with flexibility to focus on the specialized industry requirements that can turn your company's asset management into a competitive advantage.

You can use EAM to perform these tasks:

- Maintenance

  Schedule preventive maintenance and assign resources.
- Uptime

  Determine where and why your capital assets might fail, and plan alternatives.
- Reliability and risk management

  Predict equipment reliability problems to prevent them from happening.
- Inventory and warranty

  Reduce inventory and purchasing costs, and collect on warranty-related claims.
- Strategic planning

  Manage your assets to meet corporate performance goals.

Using EAM with LN CE

EAM with LN CE offers these capabilities:

Handling purchase requisitions and purchasing

In EAM, a user creates a purchase requisition with these purposes:

- To replenish the MRO warehouse
- To order material for a maintenance job
- To order services for a maintenance job

When LN CE receives a purchase requisition from EAM, a requisition is automatically created in LN CE.

The user in LN CE generates purchase orders for the requisition. In LN CE, the complete purchase order procedure must be carried out.

When the purchase order is approved, a purchase order tied to the original EAM requisition is created automatically in EAM. When the purchase order is updated in LN CE, the mirroring purchase order in EAM is also updated.

In LN CE, the purchased goods are received and an accounts payable (AP) transaction is logged.

A receipt is created in EAM and the stock levels are updated.

Issuing and returning parts to and from a work order

After items are received in inventory, they can be used on work orders in EAM. Items can be issued to a work order through the **Issue/Return Parts** page.

In EAM, a user checks out material to maintenance jobs.

A shipment transaction is logged in LN CE and the inventory levels are updated. A financial transaction is issued in LN CE.

If excessive material from jobs is returned to the MRO warehouse in EAM, a warehouse receipt transaction is logged in LN CE and the inventory levels are updated. A financial transaction is issued in LN CE.

Inventory transfers are supported in the standard integration between LN CE and EAM. MRO-related items can be transferred between warehouses through a store-to-store requisition in EAM. Issuing the items of the store-to-store requisition and receipt of the store-to-store requisition results in messages that are sent to LN CE.

Handling returns to suppliers

If items must be returned to the supplier, the items cannot be issued to a work order. Stock items must be available in the warehouse. The Supplier Return step cannot be used for stock items. Issued parts must be returned to stock through the **Issue/Return Parts** page.

For Direct Materials, the Supplier Return step in EAM must first be carried out.

In LN CE, a return purchase order must be created based on the original order. The return order must have `Return Inventory` specified in the **Return Order** field. The original purchase order must be specified in the **Original Document No** field of the order, and the lines must be created by copying the original order lines.

The return purchase order process must be carried out entirely in LN CE. In EAM, the inventory is lowered based on the message sent from LN CE.

For service items, the return flow starts in LN CE. After the purchase order receipt, the service is directly assigned to the linked work order in EAM. To return some of the services, a purchase order of type **Return** must also be created. Based on the message sent from LN CE, the quantity of the service on the related work order is reduced in EAM.

Adjusting inventory

Inventory adjustments must be carried out in EAM through Physical Inventory. Based on the inventory adjustment message published by EAM, an adjustment is created in LN CE. Adjustments carried out in LN CE are not published to EAM.

For purchase invoicing, the invoice must be received from the supplier. After matching and approving the invoice, the invoice information is published to EAM during the finalization run.

Handling maintenance planning

Work orders are generated in EAM based on preventative maintenance plans. A production resource downtime request is created in EAM based on the work orders. A resource request is logged as a service order in LN CE.

In LN CE, the resource request is scheduled or rejected along with other production plans.

The work order schedule is set or canceled in EAM.

Expense Management

Infor Expense Management is a flexible and easily configurable solution that offers unique and insightful capabilities such as spending control, reporting, and analysis. Customers can actively manage employee-initiated expenses, owing to the mobile capabilities and cloud deployment, thereby reducing the costs without impeding the business. Expense Management can automate expense-related business processes with social collaboration tools, enforce policy compliance, cut administrative costs, and reduce the risk of accidental errors and intentional fraud.

You can use Expense Management to manage Expense Reports (ER).

Using Expense Management with LN CE

Expense Management with LN CE offers these capabilities:

Master data

Companies (accounting entities), departments (cost centers in Expense Management), projects, and employees are sent from LN CE to Expense Management.

Expense types are sent from Expense Management to LN CE. The expense types are stored in LN CE and must be linked to general expense codes or sundry cost codes for correct processing of expenses in LN CE.

When employee records are sent to Expense Management, the required user records are created there, ensuring that the names match in both systems. However, if HR Talent or another HR system is used, then the personnel (employee) information is passed from this system to Expense Management and LN CE.

Because LN CE cannot make payments to employees, the employees are also available as business partners in LN CE. Bank details can be added to these business partners to reimburse the employee after expense report approval.

Expense reimbursement process

Expense Management is used by employees to register expenses. LN CE can reimburse expenses to an employee or credit card issuer.

The employee creates an expense report in Expense Management online or through the Expense Management mobile app. A manager can approve the expense report online, through email, or in the mobile app.

After approval, the approved expense reports are sent to LN CE, where they are stored in the Expense Reports table.

When processing the received expense reports in LN CE, these steps are completed:

1   The expenses are posted to LN CE as general expenses or project expenses. All expenses generate integration transactions that result in General Ledger transactions, using the mapping scheme. Additionally, project expenses update the project cost history.
2   A purchase invoice is generated in Accounts Payable for the expense report, so the expenses can be reimbursed to the employee or the credit card issuer. Users can set a parameter to generate a purchase invoice for reimbursing expenses to the employee.
3   The purchase invoice that is generated for the expense report can be paid using Cash Management. A remittance advice message is published from LN CE to Expense Management and the status of the expense report is updated in Expense Management.

Dynamic Enterprise Performance Management

Infor Dynamic Enterprise Performance Management (Infor d/EPM) is a suite of financial applications that run on the Infor d/EPM Platform. It includes applications that address requirements for budgeting and planning, reporting and analytics.

The Infor d/EPM business application is Infor Budgeting & Planning with the Workforce Budgeting module.

Using Dynamic Enterprise Performance Management with LN CE

As the basis for determining budgets for a subsequent planning cycle, actuals flow from LN CE through the Data Lake to Infor d/EPM. LN CE's data is made available to Infor d/EPM, a powerful budgeting and planning application with standard and extensive workbooks, workflow, and decision packages for making business decisions and tracking their impact on financial results.

Infor d/EPM with LN CE offers these capabilities:

- LN CE sends General Ledger balances (on ledger accounts/ dimensions) to Infor d/EPM.
- Specified and approved budgets in Infor d/EPM are posted to the Financial Budgeting System (FBS) module in LN CE Financials. The budgets from Infor d/EPM are received in the **Budget Amounts and Quantities by Year (tffbs1500m000)** and **Budget Amounts and Quantities by Period (tffbs1101m000)** sessions in LN CE.

For the integration to work, the financial period setup in LN CE and Infor d/EPM must match, which currently is based on months.

Standard load queries are built to always do a full data load to Infor d/EPM from the data load. For incremental load jobs, additional load queries must be created. Standard load queries do not come with automated data load options. ION Workflow can be used to load data from Data Lake into Infor d/EPM.

EDI Exchange

Infor EDI Exchange enables standard EDI communication with customers and trading partners for Infor applications that are connected to ION. It facilitates the transformation of EDI messages to BOD messages and vice versa. EDI Exchange can be used in non-automotive, discrete order-based business processes.

Infor EDI Exchange receives EDI messages from customers and trading partners. Infor EDI Exchange transforms an EDI message from a trading partner into a BOD message and forwards it to ION. LN CE receives the BOD message and processes it. Similarly, EDI Exchange transforms BOD messages from LN CE into standard EDI messages that are sent to trading partners.

Using EDI Exchange with LN CE

Transformation

The Transformation area is the universal message transformation engine of the application. It offers these capabilities:

- Enables LN CE customers to manage and monitor the automatic EDI communication with their customers and trading partners according to the requirements of their business processes. If required, messages can be imported, edited, and adjusted manually.
- Transforms messages with structured data from one format into another format. Structured data are BOD messages, EDI messages, or files of special formats such as XML.
- Enables customers to set up rules for the transformation of data and messages for specific trading partners and business processes. The core transformation is based on and controlled by XSLT style sheets. An XSLT style sheet is specified for a message type, a message standard, and a trading partner.
- Uses Exchange Services for the EDI communication with external trading partners.

Shipping

The Shipping area covers the comprehensive requirements in export, shipping, and carrier business. It is the solution for shipping and foreign trade, which offers these capabilities:

- Imports shipment, commercial, and proforma invoice information from LN CE. The imported information is shown in the Shipping area and processed based on the configured workflow. The information is used to print documents and labels, such as barcode labels, waybills, and advance ship notices. Customers can edit shipments, warehouse containers, packaging instructions, and the packaging of shipments. Missing information can be added manually.
- Exports the processed data to Transformation. There, it is transformed into the trading partner's preferred EDI format and transferred to the connected OEM system through Exchange Services.

Compliance

Customers must ensure that no financial transactions take place with persons or organizations listed on sanctions lists. No goods may be delivered to these persons or organizations. Therefore, LN CE customers must check these lists after each update of a list and they must document these checks.

To simplify this process, the Compliance area monitors names and addresses of companies and persons. It offers these capabilities:

- Checks each address against international anti-terror sanctions lists.
- Updates the lists and automatically performs and writes the verification results into a log file. If there are matching addresses, a warning is generated.

Administrative Functions

In the Administrative Functions area, customers can manage additional data and master data that are used by the functional areas Transformation and Shipping. It offers these capabilities:

- Stores additional data in code lists and codes. Code lists and codes represent data that is required to run the application properly. The code lists and codes are used to configure business processes for trading partners. This information is not included in received messages and is not provided by LN CE.
- Stores master data that is not provided by LN CE. Customers can add master data such as the preferential trade agreement, preference criterion, commodity code, and the customs procedure to the item master. This information is used by the Shipping area to process and print export-related documents.

- Enables customers to use master data management as a stand-alone solution. For example, for packaging material that cannot be imported from LN CE, customers can create and manage their own item master data.
- Enables customers to manage print jobs, scheduled jobs, sequential numbering, users, accounting entities, locations, roles, and permissions.

Exchange Services

The Exchange Services area is a separate web application that is used to manage and monitor the EDI message exchange between external trading partners and applications that are connected to Infor ION. It offers these capabilities:

- Sends outbound EDI messages from Transformation to external business partners, receives inbound EDI messages from trading partners, sends them to Transformation, and polls for data.
- Supports different protocols such as FTP, FTPS, OFTP, OFTP2, AS2, and X.400 for ISDN. OFTP and OFTP2 are available for ISDN and TCP/IP connections. OFTP2 supports high-speed internet connections and offers enhanced options for a secured data exchange.

Governance, Risk and Compliance

Infor Governance, Risk and Compliance (GRC) is a native cloud multi-tenant solution that helps organizations to automate audit, risk, and compliance for better governance.

It automatically identifies exceptions and controls failures in key application systems. By locating and correcting issues immediately, organizations can reduce potential business risks and increase operational efficiency.

Infor Governance, Risk and Compliance also helps to reduce compliance costs.

Using Governance, Risk and Compliance with LN CE

If Infor Ming.le is the system of record for user information, security information messages are sent from LN CE and from the IFS component of Infor Ming.le to Data Lake through ION. Data from these security messages is extracted and analyzed by GRC. Security assignment violations can be reported back from GRC to IFS through ION.

Infor Governance, Risk and Compliance with LN CE offers these capabilities:

- LN CE publishes security information, which contains information about the roles and privileges that are allowed in LN CE. This information is sent to the IFS component in Infor Ming.le where it is assigned to users in IFS. The information is also sent to Data Lake through ION.
- Users are maintained in Infor Ming.le (IFS), which is the system of record for user data. IFS publishes security information when users are added or information about the users is updated. The information is updated in LN CE and sent to Data Lake through ION.

- Data Lake, based on the subscription set up for GRC, streams the required data for its consumption and processing. GRC reads the stream and processes the data.
- GRC can provide compliant user-access provisioning to help LN CE customers prevent Segregation of Duty violations in the applications. When user provisioning or assignment changes are initiated through GRC, security information is published. This information is consumed by IFS to update the user data with the requested changes.

Security assignments in GRC are group or user authorizations in LN CE. Privileges in GRC are permissions in LN CE.

LN Mobile Service

Infor LN Mobile Service provides field service engineers quick access to relevant resources and data. This improves service resolution efficiency and customer satisfaction.

The field service engineer is linked to a service center and is responsible for performing service activities assigned to the designated service center. The service engineers can use this application as a virtual office, to accomplish their day-to-day tasks remotely.

LN's user administration services control which LN service functionality is made available to mobile apps compared to what is made available to the same user through the standard LN service user interface.

Using LN Mobile Service with LN CE

LN Mobile Service is not a stand-alone application but an addition to, and fully integrated with, the Service module of LN CE.

It is a complete solution that provides field service personnel full insight into all the required contextual information to do their job better and faster. With a modern, easy-to-use interface and full integration with LN CE, problems can be resolved quicker with instant access to centrally stored customer and product data. Additionally, enhanced scheduling and routing, reduced paperwork, and single data entry are supported.

LN Mobile Service with LN CE offers these capabilities:

- Quickly process assigned activities

  The productivity of LN CE field service team members increases, because all the required information to accept and start a job is available in one place. Instant access is available to job activity, routing, location, contact, and scheduling information, along with a description of the problem and relevant notes.

- Accurately track materials and costs

  Before the field service technicians start a job, they know what tools and materials they must bring, what is already on site, and what must be ordered or purchased. Field service technicians can also

easily keep track of the materials they use for accurate billing and replenishment. Materials can be selected through barcode scanning.

- Download and upload documents

  Documents can be downloaded and uploaded to either Infor Document Management or the Document Management module in LN CE. LN Mobile Service does not connect directly to these document management systems, but connects to the Infor LN Document Hub. The camera can be used to take a picture.

- Easily access relevant documents

  Field service personnel can make more confident and informed decisions with in-field access to relevant documents, such as manuals, previous service reports, warranties, and service contracts. With access to historical customer data, field service technicians can create profitable up-sell opportunities.

- Generate visit reports

  When a job is complete, a field service technician can easily specify the activity, solution, time, materials, and cost information to quickly generate a visit report. With the technician on site, both the customer and the field service technician can put their approval signatures directly on the service technician's mobile device.

- Stay connected

  Field service technicians have the most-up-to-date information and can upload their field data in real time through direct synchronization with LN CE. If no internet access is available, all information and data is cached and automatically synchronized when an internet connection is available. This saves time and speeds up the billing cycle, because completed job information is available in the system as soon as possible.

PLM Discrete

Infor PLM Discrete is an enterprise-wide solution for managing product data throughout its lifecycle. It provides an integrated suite of functions for managing product structures, documents and business processes, with full change management and revision control functionality

PLM Discrete offers these capabilities for users:

- Manage product structures, relationships between products, and related documents as they change.
- Revision-control all documents, product structures, and folders so that users only have access to the correct product information.
- Access previous revisions to track product change history. This is a critical capability for compliance with ISO and MI standards.
- Distribute design changes to the engineering supply chain for co-design and evaluation, through automated workflows.
- If changes are subject to an approval process before they can be released and published, set up process templates to ensure all changes are made in accordance with your requirements. This speeds up the evaluation process so that production can start quickly and accurately.
- Streamline engineering-to-deploy processes, including standard products and engineer-to-order and assemble-to order manufacturing.

- Organize, control, and distribute product-related data and process data definitions.
- Leverage simultaneous, up-to-date sharing of current revisions or critical product information. Consequently, concurrent engineering work teams across the enterprise can control the complex interrelationships that exist between all types of product design data.
- Manage all documents in a secure "vaulted" environment, with role-based security for a combination of project and lifecycle status of product data entities.
- Automatically access files anytime, anywhere across the enterprise. Automatically launch file-related desktop applications in various native file formats. Access drawings, also on the factory floor.

Using PLM Discrete with LN CE

The integration between LN CE and PLM Discrete is a hybrid integration. LN CE multi-tenant is integrated with PLM Discrete on premises.

PLM Discrete offers these capabilities with LN CE:

- PLM Discrete transfers item data and bills of material (BOMs) to LN CE. Revision-controlled BOMs are managed from PLM Discrete and data is validated in the integration process. The integration also supports the release of BOMs for a future date.
- PLM Discrete transfers tool items to production.
- PLM Discrete creates and maintains the project structure (activities and elements). Under the structure, PLM Discrete can also create and maintain project budgets material lines, which are updated in LN CE. This applies to project-specific and standard items used in projects.

PLM Discrete does not maintain or publish project header data that originates from LN CE.

Rhythm for Commerce

Infor Rhythm for Commerce is an engagement platform that provides the tools you need to create a customer-facing commerce website.

Your website is tightly integrated with the applications in Rhythm for Commerce and your ERP. Using APIs and web services, information that is displayed on your website is read directly from your databases. When your customer places an order, the order is sent from your website to your ERP for fulfillment in real time.

Rhythm for Commerce contains these applications:

- Infor Rhythm for Commerce Business Center. Use this application to arrange products into catalogs, create campaigns and promotions, and manage the customers who access your website. You also use Business Center to manage search settings, such as boosting rules, to use with Elasticsearch.
- Product Information Management. Use this application to enrich information about the products that you sell on your website. You can use Product Information Management to upload digital assets such as manuals, sell sheets, and specifications and automatically enrich product content on your sites. You also use this application to specify the product attributes that your customers can use to locate products.

- Infor Rhythm Portal. Rhythm Portal is a website portal and a content management system. Use this application to create website pages, configure the Rhythm for Commerce and Rhythm Portal widgets that are used on the pages, and manage your website's static content.
- Elasticsearch. This is the search engine of your website. When your customers search your website, Elasticsearch returns results that are based on settings that you specify in Business Center.

These components of Infor OS are used in the suite:

- Infor Ming.le. This product is used to manage single sign on for the products in the suite.
- Infor ION CE. This product is used to connect your ERP system to Rhythm for Commerce.
- Infor Document Management. This product is used to store key business documents, such as order acknowledgments, invoices, and delivery notes. When your customers visit your website, they can download the documents that are associated with their orders.

Using Rhythm for Commerce with LN CE

The main focus of the integration is to support a self-service web store for LN CE customers. The assortment items specified in LN CE are displayed on a website.

Rhythm for Commerce offers these capabilities with LN CE:

- Verification of inventory levels based on information from LN CE.
- Verification and retrieval of pricing information from LN CE.
- Placement of sales orders, which are loaded into LN CE.
- Display of shipments and invoices from LN CE in Rhythm for Commerce.

WMS

Infor WMS is an advanced warehouse management system.

The solution combines core warehouse functionality with labor management, task management, wave management, and 3PL management on one highly configurable, scalable database. The contemporary user interface, combined with an open API framework, enables advanced features such as Web RF, 3D visual warehousing, WMS Analytics powered by Birst, and voice processing, allowing you to manage multiple channels (B2B/B2C) from a single warehouse.

The benefits of Infor WMS include reduced operating expenses, enhanced inventory visibility, just-in-time inventory, inbound and outbound optimization, efficient labor utilization, enhanced security, and improved customer and supplier relationships.

Using WMS with LN CE

WMS with LN CE offers these capabilities:

Maintaining master data

Items, business partners, and carriers are maintained in LN CE. The existing master data is published to WMS through the Publish Data sessions.

When an item, business partner or carrier/LSP is created or updated in LN CE, a message is published and the same data is created or updated in WMS.

Creating orders

Orders to ship or receive items are created in LN CE. LN CE supports different types of orders such as sales orders, purchase orders, production orders, and transfer orders. When creating an order for a WMS-controlled warehouse, the parameters in the **WMS Interface Parameters (whwmd2105m000)** session are used to retrieve which LN CE functions are supported by the WMS-controlled warehouse.

Creating warehousing inbound orders

All orders to receive items in LN CE result in warehousing orders. The warehousing orders are the basis for the communication with WMS. This process is used:

1   Each warehousing order inbound line in LN CE with status `Open` is published as a ProcessAdvanceShipNotice message to WMS. After the inbound line is published, its WMS status is set to `Sent` in the **Inbound Order Lines (whinh2110m000)** session. If the WMS status is `Sent`, the order cannot be modified.
2   In WMS, the actual receipt is performed against the ASN that is created based on the ProcessAdvanceShipNotice message.
3   LN CE publishes the purchase order to WMS. WMS needs this order for reference purposes, when a receipt is registered that relates to the purchase order.

Creating shipment notices

When the ship-from business partner related to the warehousing order sends ASNs, the warehousing order inbound line is not published to WMS, but the shipment notice. The status of the shipment notice in LN CE must be `Scheduled` before it can be approved and published to WMS with a ProcessAdvanceShipNotice message.

When the shipment notice is published, the WMS status is set to `Sent` for each line. If the WMS status is `Sent`, the shipment notice line cannot be modified.

Creating warehousing outbound orders

All orders to ship items in LN CE result in warehousing orders. The warehousing orders are the basis for the communication with WMS. This process is used:

•   Each warehousing order outbound line in LN CE with status `Released` is published with a ProcessShipment message to WMS. After the outbound line is published, its WMS status is set to `Sent` in the **Outbound Order Lines (whinh2120m000)** session. The warehouse order cannot be modified until the procedure in WMS is completed.
•   Together with the ProcessShipment message, LN CE sends a SyncCarrierRoute message. This message includes information about the load to which the shipment belongs.

Performing receipts

The actual receipt is done on the basis of ASNs that are created in WMS based on ProcessAdvanceShipNotice messages sent by LN CE. A manually created ASN or ASN line in WMS is not synchronized back to LN CE. This process is used:

- Each ASN detail line with status `Received` in WMS is published with a SyncReceiveDelivery message to LN CE.
- Based on the SyncReceiveDelivery message, LN CE creates a receipt for the referenced warehousing order inbound line. In LN CE, this receipt is confirmed automatically and logistic and financial transactions are generated.
- When all ASN details are fully received, the ASN/receipt can be closed automatically in WMS.
- In the case of under-delivery, the ASN/receipt must be closed manually in WMS. Closing the ASN/receipt publishes a SyncAdvanceShipNotice message to LN CE with status `Closed`. Based on this message, LN CE closes the referenced warehousing order inbound line. Depending on the settings in LN CE, this can trigger a backorder process. This backorder is handled in LN CE as a complete new warehousing order and, therefore, as a complete new ASN/receipt.

Reversing receipts

A receipt line in WMS can be reversed. If a receipt line is reversed in WMS, a SyncReceivedDelivery message with a negative receipt quantity is published to LN CE. Based on this message, LN CE performs a receipt correction on the original receipt line.

In LN CE, no receipt correction can be made for a purchase order that has already been released to invoicing. In this case, an inventory adjustment is created and automatically processed.

Performing QC during receipt

In the ProcessAdvanceShipNotice message, LN CE indicates if QC is required. During receipt in WMS, this can be overruled for each ASN detail. This process is used:

- The SyncReceiveDelivery message that is sent by WMS includes the required QC. If QC is required, LN CE creates warehouse inspections for the receipt line in the **Warehouse Inspections (whinh3122m000)** session.
- If QC is required, QC results must be registered in WMS. When the QC status on the receipt line is set to `Completed`, a SyncInspectDelivery message is published to LN CE. Based on this message, LN CE updates the warehouse inspection for the receipt line with the results from the message.
- If QC results in rejection of inventory, the inventory balance is adjusted for the rejected quantity in WMS and LN CE. WMS generates an adjustment and publishes a SyncInventoryAdjustment message. LN CE adjusts the inventory balance based on the SyncInspectDelivery message. The SyncInventoryAdjustment message is ignored by LN CE.
- If QC is required after registration of the receipt, WMS can still execute a QC. The QC results are published to LN CE with a SyncInspectDelivery message. In LN CE, these results are handled as an inventory adjustment.

Shipping

The outbound advice information of LN CE is displayed as shipment orders in WMS. The shipping is done based on shipment orders that are created in WMS based on ProcessShipment messages sent by LN CE. Manually created shipment orders or shipment order lines in WMS are not synchronized back to LN CE. Facility transfers must be initiated from LN CE through a transfer order.

This process is used:

- In WMS, the standard shipping procedures can be followed to create an actual shipment. When the status of the shipment order is set to **Allocated** in WMS, a SyncShipment message with status **Allocated** is sent to LN CE. Based on this message, LN CE sets the WMS status of the warehousing order outbound line to **In Process**.
- When the status of the shipment order is set to **Shipped Complete** or **Empty Order** in WMS, a SyncShipment message with status **Shipped** is published to LN CE. Based on this message, a shipment is created in LN CE. The shipment can be confirmed automatically or manually.

Performing QC during shipment

In the ProcessShipment message, LN CE indicates if QC is required. This cannot be overruled by WMS.

If QC results in rejection of inventory, the inventory balance is adjusted for the rejected quantity and WMS sends a SyncInventoryAdjustment message which is ignored by LN CE. The QC results for the shipment order are published with the SyncShipment message to LN CE. The shipment information is used to adjust the inventory balance in LN CE.

Performing adjustments and cycle counting

If WMS creates an adjustment, or if a cycle count in WMS results in an adjusted quantity, a SyncInventoryAdjustment message is published to LN CE. Based on this message, LN CE creates an adjustment and processes the adjustment automatically.

Performing internal transfers

If an internal transfer is finalized in WMS, two SyncInventoryAdjustments messages are published to LN CE (reducing from and increasing to). Based on these messages, LN CE creates adjustments and processes the adjustments automatically.

Maintaining holds

When WMS creates or removes holds, WMS publishes one or more SyncInventoryHolds messages to LN CE for the inventory put on hold, or released from hold. Based on these messages, LN CE increases or decreases the inventory blockings by stock point.

Requesting inventory balances

LN CE can request WMS to publish the inventory balances for a specific warehouse/item combination. This process is used:

- A GetInventoryCount message is published to WMS after running the **WMS reconciliation (whwmd2207m000)** session in LN CE.
- WMS sends back a ShowInventoryCount message with its inventory balance.
- LN CE compares its own inventory balance with the balance in the message. In the case of differences, LN CE creates cycle count orders of type `Reconciliation`, which are processed automatically or manually.

Chapter 5: Extending the solution

Administrators can extend your solution by using extensibility options. You use these options to add or modify core application functionality.

Without direct access to the application database,source code, underlying system objects, or servers hosting the application, you can use extensibility options to change user interfaces, data models, business logic, reports, analytics, and integration points. These extensibility options use a shared set of computing resources and provide full upgradability, manageability, and isolation throughout the application lifecycle.

This table shows the types of extensibility options that are available for this solution:

Type	Description	Examples
Personalize	Modify the look, feel, and flow of an application	Themes, labels, titles, navigation, accessibility, help, and branding
Tailor	Modify elements in an application	New fields in existing tables, report layouts, objects, functions, properties, default values
Extend	Add new application functionality, including new logic, screens, or data	New UI elements and non-UI elements, including tables and business objects
Integrate	Add new integration components	BODs, Web Services

Extensibility tools overview

This table provides an overview of the ways in which this solution can be extended and the tools that are available for making extensions.

Tool	Extension	Audience
User interface in standard LN CE screens	Personalize the application (look and feel)	End user

Tool	Extension	Audience
	Specify Customer Defined Fields (CDFs)	Administrator
LN Extension Modeler	• Add (customer defined) fields, options, and logic to existing forms, menus, and BODs • Add field hooks and table hooks to existing tables	Administrator
LN Studio	• Create new tables, domains, labels, screens, sessions, modules, libraries, messages, etc. • Create new BODs and Web Services, and call SOAP Web Services from extensions	Administrator
Infor LN Report Designer	Modify Infor LN CE reports	Administrator

Personalizing

These options are used to modify the look, feel, and flow of an application. Users must be granted permissions to access these features.

On-site administrators can choose which users have access to LN CE personalization options.

Personalization options can be assigned on these levels for end users:

• Company
• Role
• User

This table shows the options that are available for personalization by end users:

Personalization	Description
Conditional formatting	Format (grid) rows or individual fields based on user-defined conditions
Field location	Move fields within a tab on the same screen
Display or hide fields	Hide or unhide fields
Mandatory fields	Require input of data in specific fields
Label change	Edit field label descriptions to more meaningful values
Color change	Change the color of field labels to emphasize importance

Personalization	Description
Saved filters	Save data filters and optionally set a default filter
Toolbar modification	Reorder or remove toolbar buttons, or add commands by using custom buttons
Menu modification	Display or hide application menu items
Saving defaults	Save the values specified in a dialog. Next time the dialog is displayed, the saved values are used
Quick flow	Suppress a dialog that has saved default values
Export to Excel	Export a selection of fields to an Excel spreadsheet and use as preset
Suppress messages	Suppress informational messages
Suppress questions	Suppress question prompts using a preset answer

The gear icon, which is available in standard LN CE screens, is used to make personalizations.

See the *Infor Ming.le-LN Plug-in User Guide (LN UI)* for information about how to make personalizations.

Tailoring

Tailoring options are used to add or modify elements in an application, for example, making changes to screen layouts, objects, functions, properties, and default values.

These options are available for customer administrators to tailor standard Infor LN CE components:

- Add Customer Defined Fields (CDFs)
- Add (customer defined) fields and logic to existing forms, reports and BODs
- Add field hooks and table hooks to existing tables

To add CDFs for Infor LN CE, you use the gear icon in the standard LN CE screens. You can add CDFs to tables, screens, reports and BODs, and you can specify validation and calculation logic around CDFs.

See the current editions of these guides:

- *Infor Ming.le-LN Plug-in User Guide (LN UI)*, for information about how to add and use CDFs.
- *Infor LN Extensions Development Guide*, for information about CDFs and extensions.

To add functionality to existing Infor LN CE components, you use the LN Extension Modeler.

You can specify extension points for these components in Infor LN CE:

- Table
- Session
- Report
- BOD / BDE

- Menu
- Process

In the LN Extension Modeler, you can set properties and hooks for those components. The implementation of the extension point for a component is called an extension. With an extension built for an extension point, you change the behavior of a component. For example, by creating an extension for a session, you can add additional fields to that session.

See the *Infor LN Extensions Development Guide* for information about how to specify extension points and use the LN Extension Modeler.

See the *Infor LN Public Interfaces and Process Extensions Reference Guide* in KB article 2003722 on the Infor Support Portal for the process extensions that can be implemented.

Extending

These options are used to create new functionality, including screens, logic, and data.

Use the LN Studio tool to extend business functionality for Infor LN CE by, for example, adding new tables, domains, labels, screens, sessions, modules, libraries, and messages.

Infor LN Studio is the Eclipse-based development environment for Infor LN CE. You create your new components in the LN CE Extensions (tx) package.

See the *Infor LN Studio Application Development Guide* and *Infor LN Studio Integration Development Guide*, for information about LN Studio and component development.

See the *Infor LN Extensions Development Guide*, for information about how to use LN Studio with extensions.

Integrating

These options are used to create new integration components.

To extend integration functionality for LN CE by, for example, adding new BODs, Web Services, and connections to SOAP Web Services from extensions, you use the Infor LN Studio tool.

See the *Infor LN Studio Integration Development Guide* for information about how to extend integration functionality with LN Studio.

Reporting

Infor LN CE provides 2000 native standard reports, which cannot be modified but can be personalized using the Infor LN Report Designer.

These options are available to modify reports:

- Design modifications, such as changing the look and feel of the reports including static or dynamic images and multiple industry standard barcode types.
- Addition of CDFs to the reports and of other fields from the LN CE database that are not yet printed on the report. A simple Report Extension must be added to the LN CE native report to make the additional fields available for the LN Report Designer.
- Routing options, as provided by Infor Document Output Management. These options determine where or to whom the reports are sent.

With the LN Report Designer, the design of a 4GL application report can be changed without modifying the standard report or using an external reporting solution. The changes are stored as personalizations, and can be found in the **Report Personalizations (ttadv9507m000)** session. Similar to other personalizations, you can copy them to another user, a personalization or DEM role, or to the company level. To deploy approved personalizations from one environment to another, report personalizations can be exported and imported. When you print a report, the most specific personalization is used.

The LN Report Designer can also be used to generate new reports that are based on a selection of fields from the application data model. These new reports are generated in the extensibility package of LN CE. After generation, you can personalize these reports in the LN Report Designer.

See the *Infor LN Report Designer Development Guide* for information about how to use the Infor LN Report Designer.

See the *Infor LN Document Output Management User Guide* for information about how to use Document Output Management.

Governance

Cloud readiness must apply to the extensibility options that you specify.

The **Extensions ready for Cloud** parameter determines whether governors are activated that govern your extensions. Consequently, upgradeability to new versions of the solution is guaranteed, no infrastructure data is revealed, and other customers are not affected by your extensions.

Together, these governors guarantee that your extensions work in the Cloud:

- LN Public Interfaces

  Extensions can call only LN Public Interfaces, previously known as trusted functions or LN APIs. See the *Infor LN Public Interfaces and Process Extensions Reference Guide* in KB article 2003722 on the Infor Support Portal for information about the Public Interfaces that are available.

- Performance

  Extensions must not affect the infrastructure. For example, the run time or amount of data written to the file system is restricted for extensions.

- File system

  Extensions can be written only to specific folders and cannot have all file extensions. For example, writing a file with an ".exe" file extension is not allowed.

- Best practices

  Extensions must comply with several database rules. As a general rule, do not use standard components.

See the *Infor LN Extensions Development Guide*, for detailed information about cloud readiness and governance.

Integrating external applications

External applications are applications that are not integrated as part of the solution. These applications include other Infor applications, third-party applications, or applications that you have developed.

This solution provides options for external applications to access data, update data, and execute logic in applications that are in the solution. Examples of executing logic are changing a status or inserting an order. Additional configuration is required to integrate external applications by using one of these options:

- ION
- Infor Ming.le
- Web services