Infor LN User Guide for Subcontracting

Important Notices

Trademark Acknowledgements

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About this document

This document explains the subcontracting of items, operations, and services in Manufacturing, Procurement, and Service.

Assumed knowledge

Although you need no detailed knowledge of the LN software to read this guide, general knowledge of the Infor LN functionality will help you understand this guide.

References

Use this guide as the primary reference for subcontracting. Use the current editions of these related references to research information that is not covered in this guide:

- *User Guide for Manufacturing U9711 US*
- *User Guide for Purchase Requisitions U9820 US*
- *User Guide for Requests for Quotation (RFQs) U9821 US*
- *User Guide for Purchase Orders U9824 US*
- *User Guide for Work Order Control (RMA & Depot Repair) U9133 US*
- *User Guide for Field Service U9000 US*
- *User Guide for Pricing U9179 US*
- *Financial Integration and Reconciliation Transactions U9867 US*

How to read this document

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Text in italics followed by a page number represents a hyperlink to another section in this document.

Underlined terms indicate a link to a glossary definition. If you view this document online, clicking the underlined term takes you to the glossary definition at the end of this document.

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Chapter 1
Subcontracting in Manufacturing

1

Overview of subcontracting

Companies can decide to involve a subcontractor and subcontract part of their activities. The subcontractor carries out the work and returns the products to your company.

In LN, subcontracting is considered as purchasing labor from a third party. Therefore, if a manufacturer wants to subcontract work, he must generate a purchase order to start the subcontracting process.

Subcontracting without material flow support

The simplest form of subcontracting is to generate a subcontracting purchase order to record the operations outsourced to a subcontractor. The subcontracting purchase order only represents the administrative handling of the subcontracting process.

When the subcontracted item is received back from the subcontractor, you must close the subcontracting purchase order, which is the signal to continue with the production process. Neither the physical handling of the subcontracted item nor sending material to the subcontractor is supported.

For more information, refer to *Operation subcontracting without material flow support (p. 16)*.

Subcontracting with material flow support

A more extensive way of subcontracting in LN includes not only outsourcing work, but also the supply and receipt of the required material.

LN supports the physical and administrative flow of subassemblies as well as the required material. After the subcontractor has finished the activities on the subcontracted items the items are shipped back to the manufacturer.

You can choose between the following types of subcontracting:

- Operation subcontracting, where part of production process (one or more operations) is subcontracted.
- Item subcontracting, where the entire production process is subcontracted.

Unplanned subcontracting

In case of unplanned subcontracting, you take the decision to subcontract work *after* the creation of a production order. If you choose to subcontract the entire production, you must convert the production order to a purchase order in the Subcontract Production Orders (tisfc2201m000) session. If you want to subcontract a number of operations, you must replace the work centers on those operations with subcontracting work centers in the Subcontract Operations (tisfc2210m000) session.

Costs and prices

The **Source of Price** field in the Items - Purchase (tdipu0101m000) session is used to determine the method to calculate subcontracting purchase prices or subcontracting cost prices.

The method can be:

- **Subcontracting Rate**. For more information, refer to *Subcontracting rates (p. 10)*.
- **Price Book / Contract**. For more information, refer to Subcontracting purchase prices.

Subcontracting rates

Subcontracting rates can be specified in the Subcontracting Rates (ticpr1160m000) session by price calculation code, **subcontractor**, and operation.

How subcontracting costs are calculated, and consequently, how the subcontracting rate must be interpreted, depends on the **Calculation Method for Subcontracting Costs** field in the Subcontracting Rates (ticpr1160m000) details session.

This field can be set to:

- **Fixed Amount by Product**
- **Operation Rate**
- **Man Hour Rate**
- **Machine Hour Rate**

Fixed Amount by Product

The costs or prices are calculated by multiplying the end item quantity displayed in the **Ordered Quantity** field in the Purchase Order Lines (tdpur4101m000) session by the subcontracting rate. Select this method if the subcontracting costs are directly related to the number of subcontracting items. The subcontracting costs are based on the gross input of the end items.

Operation Rate

The costs or prices are calculated by multiplying the end item quantity displayed in the **Ordered Quantity** field of the Purchase Order Lines (tdpur4101m000) session by the subcontracting rate factor and the

subcontracting rate. The subcontracting rate factor is defined in the Routing Operations (tirou1102m000) or the Subcontract Operations (tisfc2210m000) sessions.

Use this method if the subcontracting costs relate to the number of products, but an extra factor is required.

Example: The painting of the item is subcontracted. The subcontracting rate is defined as $50 per square meter painted. Each item has a surface area of 2.5 square meters, which is entered as the rate factor. In addition, the subcontracting rate is based on the end item quantity displayed in the **Ordered Quantity** field of the Purchase Order Lines (tdpur4101m000) session.

Man Hour Rate

If the method is man hours rate, the costs or prices are calculated by multiplying the estimated man hours by the subcontracting rate. The estimated man hours are calculated using the operation planning data such as gross end-item quantity, cycle time, and man occupation.

Machine Hour Rate

If the method is machine hours rate, the costs or prices are calculated by multiplying the estimated machine hours by the subcontracting rate. The estimated machine hours are calculated using the operation planning data, such as gross end-item quantity, cycle time, and machine occupation.

To view examples of the calculation methods, refer to *Examples of subcontracting rates (p. 11)*.

Examples of subcontracting rates

The following data is used in the examples:

Subcontracting rate	$ 50
Subcontracting factor	2.5
Gross output	170
Man hours	Gross output * cycle time (hrs) = 170 * 0.1 = 17
Machine hours	Gross output * cycle time (hrs) = 170 * 0.2 = 34

Fixed amount by product

```
Gross output * subcontracting rate = subcontracting costs
```

170 * 50 = $8,500

Operation rate

```
Gross output * subcontracting rate * rate factor = subcontracting costs
```

170 * 50 * 2.5 = $21,250

Man hour rate

```
Man hours * subcontracting rate = subcontracting costs
```

17 * 50 = $850

Machine hour rate

```
Machine hours * subcontracting rate = subcontracting costs
```

34 * 50 = $1,700

Note

If the currency system is independent, which you can specify in the Companies (tcemm1170m000) session, two currencies are available in the Subcontracting Rates (ticpr1160m000) details session. The currency displayed in the **Subcontracting Rate Multi Currency** field, is the default currency linked to the currency system. In the **Currency** field, you can manually specify the currency of the supplier. This currency is used for the purchase order.

Operation subcontracting

Setting up operation subcontracting

You can choose to subcontract part of the production process, and supply material to the subcontractor.

You must specify the following date to set up subcontracting:

Step 1: Implemented software components

Select the **Subcontracting with Material Flow** check box in the Implemented Software Components (tccom0500m000) details session.

If you need to identify subassemblies uniquely, you can select the **Demand Pegging** or the **Project Pegging** check box in the same session.

Step 2: Administrative warehouse

Define an administrative warehouse in the Warehouses (whwmd2500m000) session. The administrative warehouse reflects the external warehouse at the subcontractor's location. Define the subcontractor data in the **Sold-to** field and the **Ship-to** field. This data is necessary to create subcontracting purchase orders during the subcontracting process.

Consider the following check boxes:

- **Inventory Management**
  If you clear the **Inventory Management** check box, you indicate that the subcontractor carries out the warehouse's inbound activities, which is a logical choice in case of subcontracting. You must complete the inbound procedure in one of the following ways:
  - Use automatic warehousing procedures. For more information, refer to Warehousing orders.
  - Update the inventory based on Receive Delivery messages. For more information, refer to Receipt delivery messages.

  If you clear the **Inventory Management** check box, and select the **Manual Inbound Process Allowed** check box, inventory management is not carried out, but you can do a manual inbound.

  Note that if you select the **Inventory Management** check box, you must also use automatic warehousing procedures.
- **Include in Enterprise Planning**
  Select the **Include in Enterprise Planning** check box.

Step 3: Item data for subcontracted item and subassemblies

- **End item**
  In the Item - Production (tiipd0101m000) session, find the end item for which you subcontract one or more operations, and for which you want to support the material flow. Select he **Subcontracting with Material Flow** check box for this item.

  Calculate the end item's standard cost (top-down) in the Calculate Standard Cost (ticpr2210m000) session.
- **Subassemblies**
  In the Items (tcibd0501m000) details session, define two items for which the **Customized** check box is selected. These items represent respectively the subassembly sent by the manufacturer to the subcontractor, and the subassembly sent back by the subcontractor after work is done. If you want to leave open the possibility to produce the item yourself instead of sending it to a subcontractor, set the item type of the subassembly that you receive back from the subcontractor to **Manufactured** or **Product**.

  If the manufacturer sends no subassembly to the subcontractor but only material, you just need to define an item code for the subassembly created by the subcontractor.

Define the following data for the subassemblies:

- **Warehouse**
  In the Item - Ordering (tcibd2100m000) session, find the defined subassemblies. For the subassembly that you will send to the subcontractor, enter in the **Warehouse** field the warehouse from which you send the subassembly. For the subassembly that you receive back from the subcontractor, enter the warehouse in which you receive the subassembly.
- **Standard Cost**
  To generate an effective cost component structure, define the assemblies' costing data in the Item - Costing (ticpr0107m000) session. Calculate and actualize the standard cost in the Calculate Standard Cost (ticpr2210m000) session while the **Actualize Standard Cost and Revalue Inventory** check box is selected.
- **Supply**
  Subassemblies are sent to the subcontractor by means of a purchase subcontracting order, which is an order-specific supply. In the Item Data by Warehouse (whwmd2510m000) details session, you must therefore define the supply system Order Controlled / Single for the correct combination of the subassembly that you will send to the subcontractor and the administrative warehouse. Note that for a subassembly, this is the only supply system you can use.
- **Price**
  For the item that is sent back by the subcontractor, you must determine the price you will pay to the subcontractor. In the Items - Purchase (tdipu0101m000) session, use the **Source of Price** field to choose between Subcontracting Rate and Price Book / Contract to determine the price. Note that if you subcontract the last operation, you must define the price for the end item instead of for the subassembly.

  If the **Source of Price** field in the Items - Purchase (tdipu0101m000) session is **Subcontracting Rate**, you must define subcontracting rates in the Subcontracting Rates (ticpr1160m000) session. Define the rate by task for the correct combination of project, price calculation code, parent item or subcontractor.

  If the **Source of Price** field is **Price Book / Contract**, the Subcontracting Rates (ticpr1160m000) session is also relevant, because the tasks' cost components are defined in this session. You can leave the **Project**, **Parent item**, and **Subassembly** fields empty.

Step 4: Supply data for components

Regulate the supply of components to the subcontractor. There are two ways:

- **Order specific supply**
  Order specific supply means that supply is linked to the subcontracting purchase order. The supplied quantity is the quantity required for the purchase order. To use order specific supply, the component's supply system in the Item Data by Warehouse (whwmd2510m000) session must be **Order Controlled/Single**, for the correct combination of component and administrative warehouse.

  Order specific supply can exist between manufacturer and subcontractor, or directly between supplier and subcontractor:

Supplier - subcontractor

- Clear the **Supply from Warehouse** check box in the Item Data by Warehouse (whwmd2510m000) details session, for the correct combination of component and administrative warehouse.
- Enter the supplier in the **Ship-from Business Partner** field and the **Buy-from Business Partner** field.
- Supply takes place by purchase order.

Step 5: Terms and conditions

Define terms and conditions in the following cases:

- If components are shipped by sales orders.
- If you, the manufacturer, are responsible for the components' planning.

Perform the following steps:

1. By means of the Terms and Conditions (tctrm1100m000) session, start the Terms and Conditions (tctrm1600m000) session to define a terms and conditions agreement. The **Terms and Conditions Type** field must be **Sales**.
2. Define a terms and conditions search level for which the **Search Attribute 1** field is **Item Group**, and the **Search Attribute 2** field is **Site**. Select the **Order** check box and the **Planning** check box.
3. Double-click the defined search level to start the Terms and Conditions Search Level (tctrm1610m000) session. In this session, define the items to which the agreement applies.
4. Double-click the defined items to start the Terms and Conditions Line (tctrm1620m000) session. On the Planning tab or in the Planning Terms and Conditions (tctrm1135m000) session, select the **Responsible for Supply Planning** check box. On the Order tab or in the Order Terms and Conditions (tctrm1130m000) session, select **Sales Order Transfer** in the **Transfer Type** field.

For more information about agreements, refer to Setting up terms and conditions.

Step 6: Sales contract

If components are planned by the subcontractor or shipped by sales order, define a contract in the Sales Contracts (tdsls3500m000) session. The **Sold-to Business Partner** field must contain the subcontractor code. Use the **Terms and Conditions ID** field to link the applicable terms and conditions agreement.

Define the rest of the contract in the Sales Contract Lines (tdsls3501m000) session.

Step 7: User profile purchase

Define your user profile in Purchase Control so that LN can generate and handle subcontracting purchase orders properly.

Step 8: Subcontracting work center and shop floor warehouse

In your LN system, you must define a subcontracting work center to represent the place where subcontracting operations are carried out. In the Work Centers (tirou0101m000) session, define a subcontracting work center with work center type **Subcontracting**.

Link the following information to the subcontracting work center:

- In the **Subcontractor** field, enter the subcontractor code.
- In the **Shop Floor Warehouse** field, enter the administrative warehouse, which can be a normal warehouse or a shop floor warehouse. This warehouse represents the warehouse at the subcontractor's location, and is used to monitor the subassemblies' and components' inventory levels.

Step 9: Routing

In the Routing Operations (tirou1102m000) session, link the defined subassemblies, warehouses, and subcontracting work centers.

Step 10: BOM

In the Bill of Material (tibom1110m000) session, use the **Supplied by Subcontractor** check box to determine how the subcontractor is provided with material for subcontracting activities.

In the **Operation** field, enter the operation number for which the subcontractor requires the material.

Operation subcontracting without material flow support

The simplest way of subcontracting in LN is to create a subcontracting purchase order to record the operations that are outsourced to a subcontractor. This means that you purchase labour from a subcontractor. For this type of subcontracting, no material is supplied to the subcontractor.

To start a subcontracting process *without* material supply, you must set up the following data:

- **Subcontracted Service item**
  In the Items (tcibd0501m000) session, define an item with item type **Subcontracted Service**. This is an administrative item that represents the subcontracted work. The **Subcontracted Service** item is displayed on the subcontracting purchase order.
- **Subcontracting work center**
  Define a subcontracting work center in the Work Centers (tirou0101m000) session. In the Routing Operations (tirou1102m000) session, link the subcontracting work center to the routing operation that you want to subcontract.
- **Subcontracting rates**
  In the Subcontracting Rates (ticpr1160m000) session, define the subcontracting costs. In the **Subassembly** field you must enter the **Subcontracted Service** item. Note that you must define the rate for the correct combination of price calculation code and subcontractor. If you want to define an item-specific subcontracting rate, fill the **Parent item** field.

Step 1: Release production order

Create and release a production order for the item with subcontracted operations. On the item's routing, subcontracting work centers are defined.

Step 2: Generate subcontracting purchase order

In the Generate Subcontracting Purchase Documents (tisfc2250m000) session, generate a subcontracting purchase order. The number of the subcontracting purchase order is displayed on the subcontracted operation in the production planning.

If more than one operation is subcontracted, with more than one subcontractor involved, a purchase order is generated for every subcontractor.

Step 3: Handle purchase order

Handle the purchase order according to the defined purchase order procedure. For more information, refer to Flexible purchase order processing and Overview of purchase order handling.

Step 4: Handle warehouse order

Carry out the warehouse order procedure. For more information, refer to Warehousing orders.

Step 5: Complete operations

Complete the subcontracted operations, and, if applicable, further operations.

Step 6: Process purchase invoice

Process the purchase invoice. For more information, refer to Processing purchase invoices.

Step 7: Close production order

Close the production order.

Ad hoc subcontracting

If you had not planned to subcontract one or more operations, and consequently no subcontracting work centers are defined in the routing, use the Subcontract Operations (tisfc2210m000) session to replace an existing work center with a subcontracting work center on the operations that you want to subcontract.

Operation subcontracting with material flow support

Complete the following steps to subcontract one or more operations. Together with the subassemblies, material is sent to the subcontractor. The data setup for subcontracting with material supply is described in *Setting up operation subcontracting (p. 12)*.

Step 1: Create production order

For an item with one or more subcontracted operations, you need a production order. Create a production order manually in Job Shop Control, or create a planned production order in Enterprise Planning, and transfer it to Job Shop Control.

For planned production orders in Enterprise Planning, you can view the production order operations in the Capacity Use by Planned Order (cprrp2100m000) session. If applicable, information about subassemblies is indicated on the operation line.

Use the Print Subcontracting Forecast (cprrp2402m000) session to print a list of all subassemblies that are planned to be received from the subcontractor.

Step 2: Release production order

Release the production order in Job Shop Control.

In the Production Order (tisfc0101m100) session, on the Estimated Materials (ticst0101m000) tab, click **Show Subassembly** to view the subassemblies included in the estimated materials:

- For the subassembly that is sent to the subcontractor, a negative quantity is displayed for the operation that precedes the subcontracting operation. A positive quantity is displayed for the subcontracted operation.
- For the subassembly that is received back from the subcontractor, a negative quantity is displayed for the subcontracted operation. A positive quantity is displayed for the operation that follows the subcontracted operation.

  If the subassembly that is received back from the subcontractor is the end item, it will be received in a warehouse specified on the purchase order for this item. Material lines without warehouse orders are generated for the warehouse to denote the subassembly was physically received while administratively the end item is registered on the purchase order.

  If the subassembly received from a subcontractor is the end item, proceed to step 9.

Step 3: Generate subcontracting purchase order

A subcontracting purchase order is required to administrate the subcontracting process.

From the Production Orders (tisfc0501m000) session, start the Generate Subcontracting Purchase Documents (tisfc2250m000) session to generate a purchase order. If the **Previous Operation Must be Completed** check box in this session is selected, you must first complete the operations that precede the subcontracted operation before you can generate a purchase order.

In the Generate Subcontracting Purchase Documents (tisfc2250m000) session, enter a purchase order type. The activities linked to the purchase order type determine the handling of the subcontracting purchase order. For example, you can choose to insert the Generate Supply Orders for Subcontracting (tdpur4216m000) session, and select the **Automatic** check box, so that supply orders are automatically generated.

View the generated purchase order in the Purchase Order (tdpur4100m900) session. The order line displays the subassembly that you will receive from the subcontractor after subcontracting.

Step 4: Supply lines and supply orders

After a subcontracting purchase order is generated, you can view the supply lines, in the Purchase Order (tdpur4100m900) session or the Purchase Order Material Supply Lines (tdpur4116m000) session. Supply lines represent the materials and subassembly that must be shipped to the subcontractor

Supply orders are used to ship the subassembly and material from their warehouses at the manufacturer's location to the administrative warehouse. If supply orders are not created automatically (refer to step 3), run the Generate Supply Orders for Subcontracting (tdpur4216m000) session. Note that the subassembly's supply system, defined in the Item Data by Warehouse (whwmd2510m000) session, must be **Order Controlled/Single**.

Step 5: Approve subcontracting purchase order

In the Purchase Order (tdpur4100m900) session, click **Approve** to approve the subcontracting purchase order. For more information, refer to Purchase order approval.

Step 6: Report preceding operations completed

In the Report Operations Completed (tisfc0130m000) session, complete the operations preceding the subcontracted operations. If you defined a shop floor warehouse, the subassembly is automatically received in the shop floor warehouse. Without shop floor warehouse, the subassembly is received in the warehouse defined in the Item - Ordering (tcibd2100m000) session.

In the Material to Issue for Production Orders (ticst0101m100) session, you can check whether the subassembly is issued. In the Inventory by Specification (whwmd2519m000) session, you can check in which warehouse the subassembly is received.

Step 7: Transfer subassemblies

To ship the subassembly from the job shop or the shop floor warehouse to the subassembly warehouse, carry out the transfer order.

1. In the Material to Issue for Production Orders (ticst0101m100) session, select the subassembly that must be sent to the subassembly warehouse. This material line has a negative quantity. In the appropriate menu, click **Production Warehouse Orders** to start the Production Warehouse Orders (timfc0101m000) session.
2. Select the transfer order with transaction type **Issue**, and click **Warehouse Order - Status Overview**.
3. In the Outbound Line Status Overview (whinh2129m000) session, carry out the defined activities for the outbound-order line.

Step 8: Send subassemblies and material to subcontractor

The manufacturer must send subassemblies and material to the subcontractor. In LN, the subassemblies and material are sent to the administrative warehouse using an outbound procedure. To do so, you must handle the subassembly's and material's supply orders.

1. In the Purchase Order (tdpur4100m900) session or the Purchase Order Material Supply Lines (tdpur4116m000) session, select the subassembly and material and click **Supply Order**.
2. In the Warehousing Order (whinh2100m100) session, generate an advice.
3. If the orders were not already handled automatically, in the Warehousing Order (whinh2100m100) session, select the outbound line and click **Status Overview**.
4. In the Outbound Line Status Overview (whinh2129m000) session, carry out the defined activities such as generating and releasing the outbound advice and confirming the shipment.

In some cases, material for subcontracting activities is directly sent by the supplier to the subcontractor. In that case, complete the following steps:

1. In the Purchase Order (tdpur4100m900) session or the Purchase Order Material Supply Lines (tdpur4116m000) session, select the subassembly and material and click **Supply Order**. A new supply order is generated.
2. Select the newly generate order line, and click **Approve**.

Step 9: Receive purchase order in subassembly warehouse

After subcontracting, the subcontractor sends back the subassemblies. To receive the subassemblies into the subassembly warehouse, you must handle the purchase order. Note that the name of the subassembly sent back by the subcontractor differs from the name of the subassembly you sent to the subcontractor.

Complete the following steps:

1. In the Purchase Order (tdpur4100m900) session, select the purchase order line of the subassembly sent back by the subcontractor, and on the appropriate menu, click **Purchase Order Line Status**.
2. From the Purchase Order Line Status (tdpur4534m000) session, handle the purchase order according to the defined purchase order procedure. For more information about purchase order handling, refer to Flexible purchase order processing and Overview of purchase order handling.

Note: that when the purchase order is received, LN automatically reports the subcontracted operations as completed. If applicable, the subassembly and the material that you sent with the subassembly are backflushed.

Step 10: Transfer from subassembly warehouse to shop floor warehouse or the job shop

You may work further on the subassemblies that you received from the subcontractor. Therefore, you must issue the subassemblies to the job shop. In the Material to Issue for Production Orders (ticst0101m100) session, select the subassembly that was sent to you by the subcontractor, which is the subassembly that has a positive quantity. Issue the subassembly to the job shop.

If you use a shop floor warehouse, you must complete a transfer order to ship the subassemblies from the subassembly warehouse to the shop floor warehouse.

1. In the Material to Issue for Production Orders (ticst0101m100) session, select the subassembly that was sent to you by the subcontractor, which is the subassembly that has a positive quantity in the **To Issue** field.
2. In the appropriate menu, click **Production Warehouse Orders** to start the Production Warehouse Orders (timfc0101m000) session.
3. Select the subassembly's *transfer* order with transaction type **Issue**, and click **Warehouse Order - Status Overview**.
4. In the Outbound Line Status Overview (whinh2129m000) session, carry out the defined activities.

You can check in the Inventory by Specification (whwmd2519m000) session whether the subassembly is allocated inventory in the shop floor warehouse.

Step 11: Report operations completed

In the Report Operations Completed (tisfc0130m000) session, process the remaining operations and report them as completed. You can post the end items immediately to inventory.

Step 12: Report production order completed

Report the production order as completed in the Report Orders Completed (tisfc0520m000) details session.

Step 13: Close production order

Close the production order in the Close Production Orders (ticst0201m000) session.

Item subcontracting

Item subcontracting - setup

You can use item subcontracting to subcontract an item's entire production process. If you apply item subcontracting, *no* production order is created.

For item subcontracting, set up the following data:

Step 1: Implemented software components

If you want to perform full subcontracting, you must select the **Subcontracting with Material Flow** check box in the Implemented Software Components (tccom0100s000) session.

Step 2: Warehouse at the subcontractor's location

Define an administrative warehouse in the Warehouses (whwmd2500m000) session. The administrative warehouse reflects the external warehouse at the subcontractor's location.

For more information, refer to Vendor managed inventory and VMI warehouse settings

- **Include in Enterprise Planning**
  Select the **Include in Enterprise Planning** check box.

Step 3: Item related data

Define the following item related data:

- **Item Base Data**
  Define the end item that you want to subcontract in the Items (tcibd0501m000) session.
- **Item Production Data**
  To send material to the subcontractor, select the **Subcontracting with Material Flow** check box in the Item - Production (tiipd0101m000) session.
- **Item Purchase Data**
  In the Items - Purchase (tdipu0101m000) session, enter the appropriate price in the **Subcontracting Purchase Price** field.
- **Item Sales Data**
  In the Items - Sales Business Partner (tdisa0510m000) session, enter the administrative warehouse defined in the previous step in the **Ship-to Warehouse** field.

Step 4: Supply data for components

You can regulate the supply of components to the subcontractor in the following ways:

- **Order specific supply**
  Order specific supply means that supply is linked to the subcontracting purchase order. The supplied quantity is the quantity required for the purchase order. To use order specific supply, the component's supply system in the Item Data by Warehouse (whwmd2510m000) session must be **Order Controlled/Single**, for the correct combination of component and administrative warehouse.

  Order specific supply can exist between manufacturer and subcontractor, or directly between supplier and subcontractor:

  - **Manufacturer - subcontractor**
    Select the **Supply from Warehouse** check box in the Item Data by Warehouse (whwmd2510m000) details session, for the relevant combination of component and administrative warehouse.

    Supply happens via warehouse transfers.

  - **Supplier - subcontractor**
    Clear the **Supply from Warehouse** check box in the Item Data by Warehouse (whwmd2510m000) details session, for the related combination of component and

administrative warehouse. The **Order System** must be Manual in the Items (tcibd0501m000) session to clear this check box.

Enter the supplier in the **Ship-from Business Partner** field and the **Buy-from Business Partner** field.

Supply happens by purchase order.

- **Bulk supply**
  Bulk supply means that components are sent to the subcontractor anonymously, independent of the subcontracting purchase order. You must chose one of the these methods for a subcontracting (administrative) warehouse.
  - **Supply system**
    In the Item Data by Warehouse (whwmd2510m000) details session, for the correct combination of component and administrative warehouse, you can choose **Time-Phased Order Point**, **KANBAN**, or **Order Controlled/Batch** to generate bulk supply. Note: If the administrative and the supplying warehouses are assigned to a cluster it must be the same one, otherwise they should not be clustered.
  - **Enterprise Planning**
    To generate bulk supply using Enterprise Planning, the administrative warehouse must be in a different cluster than the main warehouse. Furthermore, distribution relations must be defined between the two warehouses. The supply system defined in the Item Data by Warehouse (whwmd2510m000) details session, must be **Order Controlled/Single**. For more information about clusters, refer to Planning Clusters in Enterprise Planning.

Step 5: Terms and conditions

Define terms and conditions in the following cases:

- If components are shipped by sales orders.
- If the subcontractor is responsible for the components' planning.

Complete these steps:

1. From the Terms and Conditions (tctrm1100m000) session, start the Terms and Conditions (tctrm1600m000) session to define a terms and conditions agreement. The **Terms and Conditions Type** field must be **Sales**.
2. Define a terms and conditions search level for which the **Search Attribute 1** field is **Item Group**, and the **Search Attribute 2** field is **Warehouse**. Select the **Order** check box and the **Planning** check box.
3. Double-click the defined search level to start the Terms and Conditions Search Level (tctrm1610m000) session. In this session, define the items to which the agreement applies.
4. Double-click the defined items to start the Terms and Conditions Line (tctrm1620m000) session. On the Planning tab or in the Planning Terms and Conditions (tctrm1135m000) session, select the **Responsible for Supply Planning** check box. On the Order tab or in the Order Terms and Conditions (tctrm1130m000) session, select **Sales Order Transfer** in the **Transfer Type** field.

For more information about agreements, refer to Setting up terms and conditions.

Step 6: Sales contract

If components are planned by the subcontractor or shipped by sales order, define a contract in the Sales Contracts (tdsls3500m000) session. The **Sold-to Business Partner** field must contain the subcontractor code. Use the **Terms and Conditions ID** field to link the applicable terms and conditions agreement.

Define the rest of the contract in the Sales Contract Lines (tdsls3501m000) session.

Step 7: BOM

In the Bill of Material (tibom1110m000) session, create the subcontracted item's BOM.

If the **Supplied by Subcontractor** check box is cleared, the components are sent to the subcontractor to be used in the subcontracted item. If this check box is selected, the components are directly supplied by the subcontractor.

Item subcontracting - procedure

You can use item subcontracting to subcontract an item's entire production process. If you apply item subcontracting, *no* production order is created.

For item subcontracting, perform the following steps:

Step 1: Create subcontracting model or revision

A subcontracting model contains all the data needed to subcontract the selected item. From the Subcontracting Models (tisub1100m000) you can:

- **Generate a new subcontracting model**
  The New command in the Subcontracting Models (tisub1100m000) session starts the Subcontracting Model (tisub1600m000) session.
  - Select the **Product** and the item from which it is derived.
  - The **Revision ID** is automatically generated starting with revision 0001.
  - Select the **Subcontractor**.
    The **Ship-from Business Partner** and **Subcontractor Warehouse** linked to the subcontractor are generated automatically. If multiple ship-from business partners, or warehouses are defined you can manually change the selection.
  - Specify the quantity of product subcontracted in the **BOM Quantity** field.
  - Specify the **Effective Date** and **Expiry Date** for the subcontracting model.
- - **Generate a new revision of an existing subcontracting model**
    Select a subcontracting model from the list.
    - With the **New Revision** command, a new subcontracting model with an updated **Revision ID** based on the old revision number is generated.

- Specify the new **Effective Date**, and set the **Status** to **New**.

A new subcontracting model, or new revision with the status **New**, must be validated before use:

- Select the subcontracting model you want validated.
- Select the **Validate Subcontracting Model** command that will open the Validate Subcontracting Model (tisub1200m000) session.
- Select the subcontracting model(s) and revision(s) for validation.
- Once the subcontracting model is validated, you can set the status of the previous revision to **Expired**.
- Set the status of the current revision to **Approved**.

Step 2: Maintain Subcontracting Bill of Material

You can maintain the bill of materials for subcontracted items in the Subcontracting Bill of Material (tisub1110m000) session or in the Materials tab of the Subcontracting Model (tisub1600m000) session.

- **Specify a new bill of material**
  You must add materials needed by the subcontractor to make the product along with quantities, and scrap percentages for the required material. For each material the **Supply System** and supplying **Warehouse** must be specified.
- **Import a bill of material from Job Shop**
  You can also import a bill of materials from the Bill of Material (tibom1110m000) session.

  The **Import Bill of Material** command starts the Import Bill of Material to Subcontracting Model (tisub1210m000) session.

  Once you have selected the **Product**, **Subcontractor**, **Ship-from Business Partner** and **Revision** you can import the bill of material with the **Import** command.

Note

If a Job Shop bill of material (BOM) containing phantoms is imported, the phantom items are exploded and their components are imported as a single level bill of material.

Chapter 2
Subcontracting in Procurement

2

Subcontracting in Procurement

In Procurement, subcontracting purchase documents can be created.

These types of subcontracting can be distinguished:

- Operation subcontracting
- Item subcontracting
- Unplanned subcontracting (operation and item)
- Service subcontracting

To start the subcontracting process, a purchase order is required.

Operation subcontracting

For operation subcontracting, a part of the production process (one or more operations) is subcontracted.

These types of operation subcontracting are available:

- **Without material flow support**
  Subcontracted service items are used on purchase documents. The subcontracting purchase order only represents the administrative handling of the subcontracting process and no material is supplied to the subcontractor.
- **With material flow support**
  Purchased, **Manufactured**, or **Product** items, with linked material supply information, are used on purchase documents. The material supply information is retrieved from Job Shop Control based on the estimated material lines of a production order's subcontracted operation. Changes to the material supply lines can only be initiated from the estimated material lines. You cannot manually update the material supply lines.

  To supply the material to the subcontractor, supply orders or schedules must be generated from the material supply lines in the Purchase Order Material Supply Lines (tdpur4116m000) session, or in the Generate Supply Orders for Subcontracting (tdpur4216m000) session.

  Consumed materials are issued from inventory and the material consumptions are updated by Manufacturing. Financial transactions are also generated by Manufacturing.

For more information, refer to *Operation subcontracting in Procurement (p. 30)*.

Item subcontracting

For item subcontracting, an item's entire production process is subcontracted. Therefore, it is always used *with* material flow support.

Subcontracted purchase order lines can be generated:

- **By Job Shop Control**
  See Unplanned subcontracting.
- **By Enterprise Planning or manually**
  When a subcontracted purchase order line is generated from Enterprise Planning or is created manually, the material supply lines are generated from the bill of material (BOM) lines.

You can always manually change the subcontracted purchase order line, purchase order line peg distribution, and the material supply lines. A material supply line's peg distribution can be updated only from the parent line, that is the purchase order line, the purchase order line peg distribution, or the material supply line.

To supply the materials to the subcontractor, supply orders or schedules are generated from the material supply lines using the Purchase Order Material Supply Lines (tdpur4116m000), or the Generate Supply Orders for Subcontracting (tdpur4216m000) sessions.

Consumed materials are issued from inventory and the material consumptions are updated by Purchase Control.

Note

- The value of the **Valuation for Subcontracting WIP** field in the Purchase Order Parameters (tdpur0100m400) session determines how the costs of the supplied materials are assigned to the received end item's inventory value.
- You can view the material supply lines'integration transactions in the Material Integration Transactions (tdpur4566m000) session.

Unplanned subcontracting (operation and item)

Unplanned subcontracting is applicable when you subcontract after generating a production order.

For unplanned subcontracting, a purchase order is generated from the production order and the material supply lines are populated by Job Shop Control. They are based on the estimated material lines of the original production order's subcontracted operation, which is deleted after the subcontracting purchase order is generated.

For more information, refer to Unplanned subcontracting.

Service subcontracting

For service subcontracting, work on an item to be maintained or repaired is subcontracted. This work entails the entire repair process, or only a part of it. Service subcontracting can be used with or without material flow support.

To supply material to the subcontractor, supply orders must be generated from the material supply lines in the Purchase Order Material Supply Lines (tdpur4116m000) session, or in the Generate Supply Orders for Subcontracting (tdpur4216m000) session.

Consumed material is issued from inventory and the material consumption is updated by Service. Financial transactions are also generated by Service.

For more information, refer to *Service subcontracting in Procurement (p. 34)*.

Subcontracting purchase prices

To retrieve the subcontracting purchase price, you can specify the pricing data for operation subcontracting, item subcontracting, or service subcontracting.

Price determination depends on the setting of the **Source of Price** fields in the Items - Purchase (tdipu0101m000) session.

If the **Source of Price** is set to **Price Book / Contract** for the type of subcontracting, subcontracting-specific purchase price and discounts are retrieved for the purchase order line, based on the following search logic that LN uses to retrieve pricing information:

1. From a valid purchase contract. The price book linked to the purchase contract must have the **Price Type** set to **Item Subcontracting**, **Operation Subcontracting**, or **Service Subcontracting**.
2. From the supplier price book, for combinations that have the **High Priority** check box selected in the Price Book Lines (tdpcg0131m000) session. The price book must include lines for which the **Price Type** is **Item Subcontracting**, **Operation Subcontracting**, or **Service Subcontracting**.
3. From a valid price matrix, selected from the price matrices for which a matrix priority is defined. This price matrix must be of the type **Purchase Price** and must have the **Subcontracted** check box selected in the Purchase Price Matrices (tdpcg0130m020) session. If more than one valid price matrix exists, price retrieval is determined by the **Price Control** field in the Pricing Parameters (tdpcg0100m000) session.
4. From the **Supplier Price Book** for combinations that have the **High Priority** check box cleared in the Price Book Lines (tdpcg0131m000) session. The price book must include lines for which the **Price Type** is **Item Subcontracting**, **Operation Subcontracting**, or **Service Subcontracting**.
5. From the relevant **Subcontracting Purchase Price** field in the Items - Purchase (tdipu0101m000) session.

Note

For item subcontracting, the source of price is always set to **Price Book / Contract**.

For operating subcontracting, the **Source of Price** can also be set to **Subcontracting Rate**. In this case, the subcontracting price is retrieved from Manufacturing.

For service subcontracting, the **Source of Price** can also be **Reference Activity**. In this case, the subcontracting price is retrieved from Service.

Operation subcontracting in Procurement

The operation subcontracting functionality enables purchase requisitions, requests for quotation (RFQs), and purchase orders to include these subcontracted items:

- Subcontracted service items, that do not require supply of material
- **Purchased**, **Manufactured**, or **Product** items with linked material supply information, which require supply of materials and subassemblies from the manufacturer to the subcontractor

Purchase documents for subcontracted items can be generated from a routing operation or production order using these sessions in Manufacturing

- Routing Operations (tirou1102m000)
- Production Orders (tisfc0501m000)
- Generate Subcontracting Purchase Documents (tisfc2250m000)

For subcontracted services, you can also manually specify purchase documents.

Master data

Before you can generate purchase documents from Manufacturing to subcontract operations, specify this master data:

- **For items with material flow**
  In the Implemented Software Components (tccom0100s000) session, select the **Subcontracting with Material Flow** check box.
- **For purchase requisitions**
  In the Items - Purchase (tdipu0101m000) session, specify the **Requisition Mandatory for Operation Subcontracting** field.

  In the Purchase Requisition Parameters (tdpur0100m200) session, specify the **Requisition Series for Subcontracting** and **Submit Generated Requisitions Automatically** fields.
- **For purchase orders**
  In the Purchase Order Parameters (tdpur0100m400) session, specify the fields in the **Subcontracting** group box, such as **Order Series for Subcontracting**, **Order Type for Subcontracting**, and **Valuation for Subcontracting WIP**.

- **For prices**
  In the Items - Purchase (tdipu0101m000) session, specify the fields in the **Operation Subcontracting** group box, such as **Source of Price** and **Subcontracting Purchase Price**.

Purchase requisitions

1. **Generating and updating subcontracting requisitions**
   You can generate a purchase requisition from a routing or a production order.

   For a subcontracted requisition line:

   - The **Subcontracted** check box is selected in the Purchase Requisition Lines (tdpur2502m000) session
   - The operation for the item routing, the production order, and the material supply information are displayed in, or can be initiated from the Linked Requisition Line Data (tdpur2502s000) session

   As much requisition lines as possible are stored under one requisition header. Lines with the same requester, purchase office, and currency appear under one header.

   If you change the required date, quantity, or peg distribution data for the production order that is linked to the purchase requisition, the changes are updated in the requisition line. For requisition lines without peg distribution, you can update the quantity and quantity unit. However, the linked production order is not modified.

   If you make changes to a routing operation that is linked to a purchase requisition, the requisition line is not modified. The routing operation can be deleted only if the requisition is not closed.

   You can cancel requisitions with the **Rejected** or **Modified** status and delete requisitions with the **Created** status. If the requisition is canceled or deleted, a new requisition can be generated for the subcontracted item.

2. **Approving subcontracting requisitions**
   If the **Submit Generated Requisitions Automatically** check box is selected in the Purchase Requisition Parameters (tdpur0100m200) session, LN submits the generated purchase requisitions for approval. **Note**: If this check box is selected, the purchase requisition cannot be updated before approval. Updates can be made only when the requisition is rejected by the approver.

   For more information, refer to Purchase requisition approval process.

3. **Converting subcontracting requisitions**
   An approved subcontracting requisition can be converted to a purchase order or an RFQ in the Convert Purchase Requisitions (tdpur2201m000) session.

   Conversion restrictions:

   - If the requisition has a linked production order and a buy-from business partner and price for the subcontracted item are identified, the requisition can be converted to a purchase order. The requisition cannot be converted to a purchase order before the linked production order is released.

- If the requisition has a linked production order, but no buy-from business partner or price can be identified or the price must be negotiated, the requisition can be converted to an RFQ.
- If the requisition has a linked routing and no linked production order, it must always be converted to an RFQ and cannot be converted to a purchase order.

For more information, refer to Purchase requisition conversion process.

Note

If an RFQ is generated for a subcontracting requisition, you cannot delete the requisition before the RFQ is converted to a purchase order. The production order must remain linked to the requisition until a purchase order is generated.

Requests for quotation (RFQs)

After a requisition with a subcontracted item is converted to an RFQ, the origin of the generated RFQ is set to **Requisition**.

For a subcontracted RFQ line:

- The **Subcontracted** check box is selected in the RFQ Lines (tdpur1502m000) and RFQ Responses (tdpur1506m000) sessions
- The operation for the item routing, the production order, and the material supply information are displayed in, or can be initiated from the Linked RFQ Data (tdpur1502s000) session

If the RFQ has a linked production order and is not yet converted to a purchase order, the production order cannot be changed. For RFQ lines and response lines, the item and peg distribution data cannot be changed. For RFQ lines without peg distribution, you can update the quantity and quantity unit, but these updates are not applied to the linked production order.

RFQ lines that are linked to a production order must be converted to a purchase order only after the linked production order is released. RFQ lines that are not linked to a production order can be converted only to a purchase contract, or a price book.

If an RFQ line has alternative lines, the link with the production order or routing is defaulted on the alternative 0. The origin for the alternatives is **Manual** and no linked data is available. If the RFQ line has a linked production order, only one alternative must be converted to a purchase order. Other alternatives can be converted to a purchase contract or a price book.

An RFQ line with the **Requisition** origin cannot be deleted before the line is converted. If more than one alternative is available for a line, alternatives can be deleted. However, the first alternative (alternative 0) must remain.

Purchase orders

Purchase orders lines with subcontracted items can be generated from Job Shop Control or from a converted requisition or RFQ. These purchase order lines must always have a linked production order.

For a subcontracted purchase order line:

- The **Subcontracted** check box is selected in the Purchase Order Lines (tdpur4101m000) session
- The production order is displayed in the Purchase Order Line - Linked Information (tdpur4502s000) session
- The material supply information is displayed in the Purchase Order Material Supply Lines (tdpur4116m000) session

The process to generate and update purchase orders lines with subcontracted items is similar to the applicable process described earlier for purchase requisitions.

Operation subcontracting prices

If a requisition is generated from **Job Shop Control** and the **Source of Price** field is set to **Subcontracting Rate** in the Items - Purchase (tdipu0101m000) session, the subcontracting rate is defaulted as the purchase price for the requisition line. When the requisition is converted to a purchase order, this purchase price is also stored on the order line and no discounts are retrieved.

If the **Source of Price** field is set to **Price Book / Contract**, no price is defaulted for the requisition line. When the requisition is converted to a purchase order, a purchase price and discounts are retrieved for the purchase order line based on the general searching logic for retrieving pricing information.

For RFQs, the requisition line price is defaulted as **Target Price** in the RFQ Lines (tdpur1502m000) session. When a requisition (with or without price) is converted to an RFQ, LN overwrites the requisition line price with the price and discounts that are returned by the bidders on the RFQ.

Subcontracting origins

A requisition, RFQ, or purchase order line with a subcontracted item, can have these origins:

Purchase object	Available origins	Explanation	Linked document(s)
Requisition	**Routing**	Generated from a routing operation	Routing operation
	Job Shop Control	Generated from a production order	Production order
	Manual	Manually specified subcontracted service	-

RFQ	**Requisition**	Generated from a converted requisition with the **Routing**, **Job Shop Control**, or **Manual** origin	Routing operation, or production order, requisition
	Manual	Manually specified subcontracted service	-
Purchase order	**Job Shop Control**	Generated from a production order	Production order
	Requisition	Generated from a converted requisition with the **Job Shop Control** origin	Production order, requisition
	RFQ	Generated from a converted RFQ with the **Requisition** origin	Production order, RFQ

Service subcontracting in Procurement

The service subcontracting functionality enables purchase requisitions, requests for quotation (RFQs), and purchase orders to include subcontracted items.

Service subcontracting is supported with and without material flow. When purchasing subcontracting service activities from Depot Repair or Field Service, materials can be supplied to the subcontractor. In case of Depot Repair, also the complete item to be maintained (subassembly) can be supplied to the subcontractor.

Master data

Before you can generate subcontracting purchase documents from Service, you must specify the master data.

For more information, refer to *Data setup for service subcontracting with material flow (Depot Repair) (p. 39)*.

Generating purchase documents from Service

Purchase requisitions and purchase orders with subcontracted items are generated from Service; either from a work order activity in case of depot repair, or from a service order activity in case of field service.

- **Depot repair**
  A purchase requisition or purchase order is generated of origin **Maintenance** when the **Activity Status** of a work order activity changes to **Released** in the Work Order (tswcs2100m100) session.

  The purchase requisition or purchase order can include a cost or service item, or a purchased or manufactured item.

  If the **Supply Item to Subcontractor** check box is selected in the Reference Activities (tsacm1101m000) session, the (purchased or manufactured) item must be supplied to the subcontractor.

  If the **Supply Material to Subcontractor** check box is selected for the item in the Reference Activities (tsacm1101m000) session, materials must be supplied to the subcontractor for the item.

  You can view the supplied items and materials in the Purchase Order Material Supply Lines (tdpur4116m000) session.

- **Field service**
  A purchase requisition or purchase order is generated of origin **Service** when the **Activity Status** of a service order activity changes to **Planned** in the Service Order (tssoc2100m100) session.

  The purchase requisition or purchase order always includes a cost or service item.

  If the **Supply Material to Subcontractor** check box is selected for the item in the Reference Activities (tsacm1101m000) session, materials for the item can also be supplied to the subcontractor. You can view these materials in the Purchase Order Material Supply Lines (tdpur4116m000) session.

Purchase requisitions

1. **Generating subcontracting requisitions**
   A purchase requisition can be generated from a work order activity, or service order activity.

   For a subcontracted requisition line:

   - The **Subcontracted** check box is selected in the Purchase Requisition Lines (tdpur2502m000) session
   - The work order, the service order, the reference activity, and the material supply information are displayed in, or the details can be accessed using the Linked Requisition Line Data (tdpur2502s000) session

2. **Approving subcontracting requisitions**
   If the **Submit Generated Requisitions Automatically** check box is selected in the Purchase Requisition Parameters (tdpur0100m200) session, LN submits the generated purchase requisitions for approval. **Note**: if this check box is selected, the purchase requisition cannot be updated before approval. Updates can be made only if the requisition is rejected by the approver.

   For more information, refer to Purchase requisition approval process.

3. An approved subcontracting requisition can be converted to a purchase order or an RFQ in the Convert Purchase Requisitions (tdpur2201m000) session.

   The following is applicable:

   - If a suitable buy-from business partner and price are retrieved for the subcontracted item, the requisition can be converted to a purchase order.
   - If no suitable buy-from business partner or price can be retrieved or the price requires negotiation, the requisition can be converted to an RFQ.

   If an RFQ is generated for a subcontracting requisition, you cannot delete the requisition before the RFQ is converted to a purchase order.

   For more information, refer to Purchase requisition conversion process.

Requests for quotation (RFQs)

After a requisition with a subcontracted item is converted to an RFQ, the generated RFQ's origin is set to **Requisition**.

For a subcontracted RFQ line:

- The **Subcontracted** check box is selected in the RFQ Lines (tdpur1502m000) and RFQ Responses (tdpur1506m000) sessions
- The work order, the service order, the reference activity, and the material supply information are displayed in, or the details can be viewed using the Linked RFQ Data (tdpur1502s000) session

The generated RFQ must be converted to a purchase order in the Convert RFQs (tdpur1202m000).

An RFQ line with the origin **Requisition** cannot be deleted before conversion. If more than one alternative is available for a line, alternatives can be deleted. However, the first alternative (alternative 0) must remain.

Purchase orders

Purchase orders lines with subcontracted items can be generated from Service or from a converted requisition or RFQ.

For a subcontracted purchase order line:

- The **Subcontracted** check box is selected in the Purchase Order Lines (tdpur4101m000) session.
- The work order, the service order, and the reference activity are displayed in the Purchase Order Line - Linked Information (tdpur4502s000) session.
- The material supply information is displayed in the Purchase Order Material Supply Lines (tdpur4116m000) session, from which supply orders can also be generated. A warehouse transfer order, or sales transfer order must be generated to transfer the material from the component warehouse (supply-from warehouse) to the administrative warehouse (supply-to warehouse), which represents the subcontractor's warehouse.

- If the item to be repaired (subassembly) is serialized, the item with the proper serial number can be sent to the subcontractor and received. As a result, the purchase order line and material supply line include the lot and serial information.
- A subassembly can be owned by a customer. As a result, a purchase order line and material supply line support sending and receiving customer owned items.

After the purchase order is generated, the linked service order or work order is updated with the purchase order number and the buy-from business partner.

Receipts and consumptions

For a subcontracted item of the type **Cost** or **Service**, the receipts can be processed in Procurement or Warehousing. This is determined by the **Release to Warehousing** check box in the Items - Purchase (tdipu0101m000) session.

LN generates a trigger from Procurement or Warehousing, to Service on the receipt of the item.

Based on the receipt information, Service issues the materials from inventory and updates the consumed quantities on the material supply lines.

Service subcontracting prices

If a requisition is generated from Service and the **Source of Price** field is set to **Reference Activity** in the Items - Purchase (tdipu0101m000) session, LN defaults the purchase price from Service on the requisition line. After the requisition is converted to a purchase order, this purchase price is also defaulted on the order line and no discounts are retrieved.

If the **Source of Price** field is set to **Price Book / Contract**, price data is not defaulted on the requisition line. When the requisition is converted to a purchase order, the purchase price and discounts are retrieved for the purchase order line, based on the general search logic utilized for retrieving pricing information.

For RFQs, the requisition line price is defaulted as the **Target Price** in the RFQ Lines (tdpur1502m000) session. After the requisition (with or without the price) is converted to an RFQ, LN overwrites the requisition line with the price and discounts, specified by the bidders on the RFQ response.

Chapter 3
Subcontracting in Service

3

Data setup for service subcontracting with material flow (Depot Repair)

To implement the Subcontracting with Material Flow in Depot Repair functionality, the data must be set up in various LN packages.

Common

- The **Service Subcontracting with Material Flow** check box must be selected in the Implemented Software Components (tccom0500m000) session.
- Define the business partner representing the subcontractor in the Business Partners (tccom4500m000) session. The **Role** of the business partner must be set to **Customer and Supplier**.

Note

When you define the business partner, the subcontractor must be the same as defined in the Reference Activities (tsacm1101m000) session.

Service

When you plan and release the subcontracted activity, an Other Resource line of type Subcontracted is created for the cost item.

The following check boxes must be selected in the Reference Activities (tsacm1101m000) session:

- **Subcontracted**
- **Supply Item to Subcontractor**
- **Supply Material to Subcontractor**

Procurement

Before you can generate subcontracting purchase documents from Service, specify this master data:

- **Items - Purchase (tdipu0101m000)**
  You must define a value in the **Source of Price** field (**Service Subcontracting** group box) on the **Purchase Details I** tab in the Items - Purchase (tdipu0101m000) session.
- You can optionally set the following data in the Items - Purchase (tdipu0101m000) session:
  - Define the **Subcontracting Purchase Price**.
  - Select the **Requisition Mandatory for Service Subcontracting** check box.
- **Purchase Requisition Parameters (tdpur0100m200)**
  You must specify a value in the **Requisition Series for Service Subcontracting** and the **Submit Generated Requisitions Automatically** fields.
- **Purchase Order Parameters (tdpur0100m400)**
  You must specify the service subcontracting fields in the **Subcontracting** group box, such as **Order Series for Service Subcontracting**, and **Order Type for Service Subcontracting**.

Warehousing

- For each subcontractor, a **Warehouse** must be defined in the Warehouses (whwmd2500m000) session. The following data must be specified in the Warehouses (whwmd2500m000) session:
  In the **Supply Settings** group box, on the **General** tab:
  - Define the **Supply System**. The value must be set to **Order Controlled/Single**.
  - Define the **Supply Company**.
  - Define the **Supply Warehouse**. From this warehouse, the items are transferred to the subcontractor's warehouse.
- On the **Relationships** tab:
  - Clear the **Inventory Management** check box.
  - Define the **Business Partner** in the **Inventory Management** group box.
  - Define the **Business Partner** in the **Site** group box.
  - The **External Site** field must be set to Yes.
  - Define the **Sold-to** and the **Ship-to** fields in the **Business Partner** group box.
- The following data must be specified in the **Supply Settings** group box in the Item Data by Warehouse (whwmd2510m000) session:
  - Define the **Supply System**. The value must be set to **Order Controlled/Single**.
  - Define the **Supply Company**.
  - Define the **Supply Warehouse**. From this warehouse, the items are transferred to the subcontractor's warehouse.

Financials

An integration document type must be defined in the:

- Integration Document Types (tfgld4557m000) session
- Mapping Scheme (tfgld4573m000) session

Subcontracting with material flow for Depot Repair

When a subassembly is subcontracted, an outgoing subassembly is created with **Action Outgoing Subassembly** set to **To Subcontractor** in the Work Order Outgoing Subassemblies (tswcs4150m000) session. When this subassembly is processed, a subcontracted activity is created.

When you plan and release the subcontracted activity, an Other Resource line is created for the cost item, and based on that a purchase requisition or a purchase order is created, with the outgoing subassembly on a material supply line and on the purchase order line. The material supply lines are also created for the material linked to the subcontracted activity in the Purchase Order Material Supply Lines (tdpur4116m000) session.

Note

The 'planned' subcontracting (the subcontracting activity is created when creating the work order) only supports the material flow, and not the end-item / subassembly flow.

The following are the possible scenarios:

Scenario 1: Sending an item to the subcontractor and receiving the same item back

The maintenance sales order can be created manually or generated from a call, for the item (serialized). When the item is specified on the part maintenance line, the related work order is generated. For more information refer to *Subcontracting flows (p. 46)*.

For this work order activity, a purchase order is generated, only if the **Subcontracted** check box is selected. The item to be repaired is specified by creating an outgoing subassembly.

A warehouse transfer order is generated from this material supply line to transfer the item to be repaired to the subcontractor. After repairing the item, subcontractor returns the item to the warehouse, so it is received on the purchase order line. Subsequently, the item is issued to the work center by means of an incoming subassembly. The work order can be closed after all the activities are completed and the related MSO is updated. The repaired item is sent back to the customer and an invoice can be sent to the customer. The purchase invoice is costed on the MSO and the purchase invoice sent by the customer is managed in ACP.

Note

In this scenario, the item to be repaired is owned by the customer.

Scenario 2: Sending an item and part to the subcontractor and receiving the same repaired item back

The process of subcontracting the item is the same as that described in scenario 1, an additional component is sent to the subcontractor, along with the item, to be repaired. This component is specified on the material supply lines.

Note

The additional component can be company-owned or customer-owned.

A warehouse transfer order is generated from this material supply line to transfer the item, and the additional component, to the subcontractor. After repairing the item, subcontractor returns the item to the warehouse. Subsequently, the item is issued to the work center. The work order can be closed after all the activities are completed and the related MSO is updated. The repaired item is sent back to the customer and an invoice can be sent to the customer. The purchase invoice is costed on the MSO and the purchase invoice sent by the customer is managed in ACP.

Note

- When the item is received back from the subcontractor in the warehouse, backflushing (decreasing the stock in the administrative warehouse) is required.
- In this scenario, the item to be repaired is owned by the customer.

Scenario 3: Sending an item and material to the subcontractor and receiving the same repaired item and a broken part, back

The process of subcontracting the item is the same as that described in scenario 2, except that, after repairing the item, the subcontractor returns the item along with the broken part, to the warehouse.

Scenario 4: Sending item A serial 123 and receive item A or item B with a different / other serial number

In this scenario, the item scheduled for repair, is sent to the subcontractor along with the additional component. A warehouse transfer order is generated from the material supply line to transfer the item and the additional component; to the subcontractor. After repairing the item, subcontractor returns the item to the warehouse.

In this scenario, as the item returned from the subcontractor has a different serial number, the related orders such as the work order and the maintenance sales order, must be updated with the new serial number using the supersede procedure.

Note

In case a service contract is specified for the old serial number and is not specified for the new serial number, the receipt of the item is not possible. Hence, it is recommended that you define a contract at a higher level such as, the item.

To support these scenarios, the following processes are possible:

- An end-item/subassembly flow (to and from the subcontractor)
- A parts (material) flow to the subcontractor
- A broken parts flow from the subcontractor

Subcontracting with material flow in field service

For a service order, when an activity is subcontracted with material flow, the possible scenarios are:

- Material resources are delivered to subcontractor
- Material resources are delivered to location address or customer address
- No material is delivered (subcontractor uses own material)

In Scenario One and Two, the components which are required for the repair are either sent to the customer or to the location address. The subcontractor sends an invoice to the manufacturer with information related to the used materials, hours and so on. These costs have to be “transferred” to the related service order.

In scenario 3, components are not sent to either the customer or the location address. Material is managed by the subcontractor. The subcontractor sends an invoice to the manufacturer with information related to the used materials, hours and so on. These costs have to be “transferred” to the related service order.

The service order can have one or more lines (activities). For subcontracting, the following scenarios are possible:

1. Service Order and one activity which is subcontracted – no materials defined
2. Service Order and one activity which is subcontracted – materials are defined
3. Service Order with multiple activities and one or more are subcontracted – no materials defined
4. Service Order with multiple activities and one or more are subcontracted – materials defined

Service Order and one activity which is subcontracted – no materials defined

In this scenario, only one line (activity) is linked to the service order. The **Subcontracted** checkbox is selected and the **Reference Activity** is not specified in the Service Order Activities (tssoc2110m000) session. The user can specify the Buy-from business partner (**Subcontractor**) and the **Item Subcontracting**.

The service engineer cannot select the Buy-from BP but can specify the **Item Subcontracting**. The Buy-from BP is or can be defaulted from the item-purchase data of the service/cost item. When ERP LN does not default the buy-from BP:

- a purchase order cannot be generated
- a purchase requisition is generated; if the **Requisition Mandatory** check box (in the **Service Subcontracting** group box) is selected in the Items - Purchase (tdipu0101m000) session.

Note

Scenario 3 and scenario 1 are similar. However, in scenario 3, multiple activities are linked to the service order.

Service Order and one activity which is subcontracted – materials are defined

In this scenario, the functionality is similar to that explained in the previous scenario, in addition to which estimated material is also specified. This material has to be transferred to the subcontractor. You must also specify if the material is **Company Owned** or **Customer Owned**.

Note

Scenario 4 and scenario 1 are similar. However, in scenario 4, multiple activities are linked to the service order.

A parts (material) flow to the subcontractor and a broken part flow from the subcontractor

A parts (material) flow to the subcontractor

Material can also be sent to the subcontractor. This material is created/generated as Work Order Material Resources (tswcs4110m000) lines, linked to the subcontracted activity. Consequently, this material can only be added after processing the outgoing subassembly (when the subcontracted activity is created), and before the subcontracted activity is released. The required material can also be added to the reference activity linked to the outgoing subassembly.

When the **Supply Material to Subcontractor** check box is selected in the Work Order Activities (tswcs2110m000) session, the **Delivery Type** can be set to **From Warehouse**, **Via Purchase**, or **From Kit** in the Work Order Material Resources (tswcs4110m000) session.

The **Ownership** of the material can be set to **Company Owned** or **Customer Owned**, in the Work Order Material Resources (tswcs4110m000) session.

Note

The **Delivery Type** can be set to **Subcontracting Requirement**, only if the **Supply Material to Subcontractor** check box is cleared.

If the **Delivery Type** is set to **Subcontracting Requirement**, the value in the **Ownership** field is set to **Not Applicable**.

When a purchase requisition is created, the material is not linked directly to the requisition. When the requisition is converted to a purchase order, the material to be supplied is retrieved from the work order material resources. The material can be added, modified, or deleted only until the purchase order is created. When the **Supply Material to Subcontractor** check box is cleared, material can not be supplied.

Usually, material is delivered to the work center of the activity, through a warehouse order. The warehouse order is not required when the material is linked to a subcontracted activity for which the **Supply Material to Subcontractor** check box is selected. The material specified in the Purchase Order Material Supply Lines (tdpur4116m000) session is shipped directly to the subcontractor's warehouse. The **Supply-from Warehouse** in the Purchase Order Material Supply Lines (tdpur4116m000) session is populated with the **Warehouse** specified in the Work Order Material Resources (tswcs4110m000) session.

For material with **Delivery Type** set to **Via Purchase**, the purchase order must be processed to receive the material in the warehouse. Otherwise, shortages can occur.

From the Purchase Order Material Supply Lines (tdpur4116m000), warehouse transfer orders are generated to send the material to the subcontractor, that is, from the **Supply-from Warehouse** to the **Supply-to Warehouse** (an administrative warehouse). If the **Supply-to Warehouse** is modified, the subcontractor's **Warehouse** on the related Work Order Material Resources (tswcs4110m000) line must be populated with this warehouse, and a warehouse order can be generated.

When the subcontracted item is received from the subcontractor, the material is assumed to have been consumed. So, this material is issued from the subcontractor's (administrative) warehouse (back flushing). This backflushing process is initiated by Purchasing.

Broken parts flow

In this scenario, broken parts can be received from the subcontractor.

This is done by adding outgoing subassemblies linked to the subcontracted work order activity, with **Action Outgoing Subassembly** set to **To Warehouse** in the Work Order Outgoing Subassemblies (tswcs4150m000) session . The **Warehouse** is populated with the **Warehouse Incoming Parts** of the **Service Department**. By default, the **Action Incoming Subassembly** is set to **No Action** and cannot be modified. The **Received from Subcontractor** check box indicates that this outgoing subassembly is a (broken) part received from the subcontractor. This checkbox is selected, when an outgoing subassembly for a subcontracted activity is added manually. This checkbox is required to distinguish broken parts from outgoing subassemblies.

To return these broken parts to the customer, the part delivery lines can be generated using the **Add as Part Delivery Line** option from the Action menu in the Work Order Outgoing Subassemblies (tswcs4150m000) session. This option is available:

- For an external work order, if the subassembly is linked to a subcontracted activity

- If the **Action Outgoing Subassembly** is set as **To Warehouse** and **Action Incoming Subassembly** is set to **No Action**.

Subcontracting flows

An end-item/subassembly flow (to and from the subcontractor)

A Maintenance Work Order (MWO), generated from a part maintenance line, can be released when an item is shipped from the warehouse to the service department. The following scenarios are possible:

- Planned subcontracting
- Ad hoc subcontracting

Planned subcontracting

Planned subcontracting implies that the subcontracted activity is predefined in the reference activity linked to the part maintenance line. This activity specified for the MWO-header-item, can also be considered for a subassembly.

Owing to the material flow functionality, you must specify for which item the subcontracted activity is specified.

Consequently, a predefined (or manually added) subcontracted activity does not support the logistic flow of the MWO header item because the **Supply Item to Subcontractor** check box is cleared and cannot be modified. However, Infor LN supports the logistic flow of the material, hence, the **Supply Material to Subcontractor** check box can be selected.

Ad hoc subcontracting

The subcontracted activity is not yet created. The activity is created when the outgoing subassembly; with the **Action Outgoing Subassembly** set to **To Subcontractor** in the Work Order Outgoing Subassemblies (tswcs4150m000) session, is processed. This outgoing subassembly can comprise of a part of the MWO header item (a ‘real’ subassembly), or the MWO header item, and is linked to the disassembly activity. For the MWO header item that is used as outgoing subassembly, only the **To Subcontractor** action can be selected in the Work Order Outgoing Subassemblies (tswcs4150m000) session and the **Reference Activity** must be specified.

If the **Supply Item to Subcontractor** check box is selected in the Reference Activities (tsacm1101m000) session, a warehouse must be specified, to which the subassembly is sent, before being shipped to the

subcontractor. When the outgoing subassembly is processed, following are the possible scenarios:

Situation	Supply Item to Subcontractor	Supply Material to Subcontractor
1	No	No
2	No	Yes
3	Yes	No
4	Yes	Yes

- **Scenario 1**
  In this scenario, the MWO header item can also be used as the outgoing subassembly. The warehouse is not required.

  The subcontracted activity cannot be deleted. The **Supply Item to Subcontractor** check box in the Work Order Activities (tswcs2110m000) session is cleared, and cannot be modified. The **Supply Material to Subcontractor** check box can be selected until the activity is released. The subcontracting purchase order or requisition is created, and the activity cannot be modified anymore. On processing the subassembly, an incoming subassembly with **Action Incoming Subassembly** set to **From Subcontractor** in the Work Order Incoming Subassemblies (tswcs4151m000) session is created and linked to the assembly activity.

- **Scenario 2**
  This scenario is almost identical to scenario 1. The difference being the **Supply Material to Subcontractor** check box is selected in the Work Order Activities (tswcs2110m000) session, when the activity is created. This field can be modified, until the activity is released.

- **Scenario 3**
  In this scenario, specifying the **Warehouse** is mandatory. Infor LN defaults the warehouse outgoing parts of the work center, of the disassembly activity.

  When you process the subassembly, a warehouse inbound order is created to move the subassembly from the work center to the warehouse.

  A subcontracted activity is also created. The **Supply Item to Subcontractor** check box is selected, and cannot be modified. The **Supply Material to Subcontractor** check box can be selected, until the activity is released.

  An incoming subassembly with **Action Incoming Subassembly** set to **From Warehouse** is created and linked to the subcontracted activity. The warehouse of the incoming subassembly is populated with the subcontractor's warehouse.

  For the subcontracted activity, when the **Create Purchase Requisition** check box is selected, the subcontractor is not specified. So, the subcontractor's warehouse is also not specified. The warehouse for the incoming subassembly is populated with the warehouse that is populated for the outgoing subassembly. When the purchase requisition is transferred to a purchase order, the subcontractor is populated, and the warehouse is updated with the subcontractor's warehouse.

  This warehouse is retrieved from the Items - Sales Business Partner (tdisa0510m000) session. If not defined in this session, the subcontractor's warehouse is retrieved from Warehouses (tcmcs0503m000) session.

- **Scenario 4**
  This scenario is almost identical to scenario 3. The difference being the **Supply Material to Subcontractor** check box is selected when the activity is created. This field can be modified until the activity is released.

To Revert Outgoing Subassembly Actions

Outgoing Subassembly - Undo process

When you process an outgoing subassembly, the process of creating a warehouse order, a subcontracted activity, and an incoming subassembly is initiated. The status of the outgoing subassembly is set to processed.

It is possible that the specified action for the outgoing subassembly is not correct. For example, the subcontractor is unable to perform the task, and the work is required to be completed by another department, or the subassembly needs to be moved to a warehouse instead of a location. In such scenarios, you can use the **Undo Confirm** from the Action menu in the Work Order Outgoing Subassemblies (tswcs4150m000) session to revert the process.

Action Outgoing Subassembly To Location

When **Action Outgoing Subassembly** is set **To Location**, the subassembly is linked to the selected location. When you process this subassembly, an Incoming Subassembly is created for this location.

You can revert this process before the incoming subassembly is processed. The **Confirmed** check box is cleared, and the related incoming subassembly is deleted.

Action Outgoing Subassembly To Location for Work

When **Action Outgoing Subassembly** is set **To Location for Work**, the subassembly is linked to the selected location. A work order and an incoming subassembly is created. You can undo this process, as long as the **Status** of the related work order is **Free**. The **Confirmed** check box is cleared; the related work order and the incoming subassembly are deleted.

Action Outgoing Subassembly To Warehouse

When **Action Outgoing Subassembly** is set **To Warehouse**, the subassembly is linked to the selected warehouse. When you process this subassembly, a warehouse order is created to manage the inbound. You can undo this process, before the warehouse inbound procedure is initiated.

The **Confirmed** check box is cleared, the warehouse order, the planned inventory transaction and the incoming subassembly are deleted.

Action Outgoing Subassembly To Department

When **Action Outgoing Subassembly** is set **To Department**, the subassembly is maintained in a department other than the current department. Hence, the subassembly is returned to the warehouse of the service department, and transferred to the warehouse of the other department. A warehouse inbound and transfer order are created. Also a work order is created to manage the subassembly in the new department.

You can undo this process, if the warehouse inbound procedure is not initiated, and the **Status** of the related work order is still **Free**.

The **Confirmed** check box is cleared, the related warehouse order, the planned inventory transaction, the incoming subassembly, and the work order is deleted.

Action Outgoing Subassembly To Subcontractor

When **Action Outgoing Subassembly** is set **To Subcontractor**, the subassembly is managed by a subcontractor. When you process this subassembly, a new activity is linked to the work order.

You can undo this process, as long as the **Status** of the subcontracted activity is **Free**, and the warehouse inbound procedure is not initiated.

The **Confirmed** check box is cleared, and the related warehouse order, the planned inventory transaction and the related incoming subassembly are deleted. The subcontracted activity is also deleted. The **Subcontracting Activity** field in the Work Order Outgoing Subassemblies (tswcs4150m000) session is cleared.

Action Outgoing Subassembly To Scrap

When **Action Outgoing Subassembly** is set **To Scrap**, the subassembly is scrapped. When you process this activity, the **Confirmed** check box is selected, the serial status and the physical breakdown is updated.

The **Confirmed** check box is cleared, the serial status is updated after the new action is processed.

Appendix A
Glossary

A

activity

A step that you must carry out for the purchase/sales order type. An activity represents the sessions or the manual action that you must carry our for the purchase/sales order type.

administrative warehouse

A warehouse that offers a view of a warehouse that is managed by a business partner. An administrative warehouse corresponds with a physical warehouse controlled by the business partner's system. In that physical warehouse, the inbound and outbound processing takes place. The administrative warehouse mirrors the inventory levels present in the business partner's warehouse.

Administrative warehouses are used in situations such as the following:

- The warehouse is at your location, but a supplier manages and possibly owns the inventory until you use the items.
- The warehouse is at the customer's location. You own the inventory until the customer uses the items, but the customer manages the inventory.
- The warehouse is at the subcontractor's location. You own the unfinished goods present in the warehouse, but the subcontractor manages the inventory.

Administrative warehouse is not one of the warehouse types that you can define in LN, setting up an administrative warehouse requires various parameter settings.

appropriate menu

Commands are distributed across the **Views**, **References**, and **Actions** menus, or displayed as buttons. In previous LN and Web UI releases, these commands are located in the *Specific* menu.

bill of material (BOM)

A list of all parts, raw materials, and subassemblies that go into a manufactured item and show the quantity of each of the parts required to make the item. The BOM shows the single-level product structure of a manufactured item.

cost calculation code

A specification of how a standard cost, valuation price, or sales price is calculated. The code stores specific cost calculation data.

The price calculation code that is defined in the Standard Cost Calculation Parameters (ticpr0100m000) session determines the standard cost. Other cost calculation codes are used for simulation purposes. The price calculation code for customized items is stored by project.

Example

- Specific operation rates
- Subcontracting rates
- Simulated purchase prices
- Surcharges

cycle time

In LN, the time between completion of two separate units of production. For example, the cycle time of motors assembled at a rate of 120 per hour is 30 seconds.

The cycle time is also equal to the time that a product stays in one position on a assembly line, or the time that an operation is carried out on an item in a work station (excluding setup time).

inbound

A procedure in which received goods are stored in a warehouse.

independent currency system

A currency system in which all financial companies and logistic companies that are related to each other in the enterprise structure model use the same two or three home currencies. All transactions are registered in all the home currencies.

Currency rates are defined between the transaction currencies and all home currencies. Transaction amounts are converted directly from the transaction currency into the home currencies.

See: standard currency system

integration document type

Represents a type of Operations Management transaction for the purpose of mapping and posting the integration transactions to Financials and for financial reconciliation.

The integration document types supplied by LN each have the corresponding business object attached to them. For example, the integration document types for the various sales order transactions have the **Sales Order** business object linked to them.

integration transaction

A financial transaction that is generated through LN packages other than Financials. For each logistic transaction that must be reflected in Financials, LN generates an integration transaction, for example, Purchase/Receipt, Production/WIP Transfer, and Project/Costs of Goods Sold. LN posts the integration transaction to the ledger accounts and dimensions defined in the integration mapping scheme.

item subcontracting

The entire production process of an item is outsourced to a subcontractor.

machine hours

The machine capacity in hours required to carry out the operation.

The formula LN applies to calculate the machine hours depends on whether or not the operation has a fixed duration. If the operation has a fixed duration, LN applies the following formula to calculate the machine hours:

Machine hours = (setup time * machine occupation) + (cycle time * machine occupation / routing quantity)

If the operation does not have a fixed duration, LN applies the following formula to calculate the machine hours:

Machine hours = (setup time * machine occupation) + (cycle time * quantity planned input * machine occupation / routing quantity)

man hours

The man capacity in hours required to carry out the operation.

The formula LN applies to calculate the man hours depends on whether or not the operation has a fixed duration. If the operation has a fixed duration, LN applies the following formula to calculate the man hours:

Man hours = (setup time * man occupation for setup) + (cycle time * man occupation for production / routing quantity)

If the operation does not have a fixed duration, LN applies the following formula to calculate the man hours:

Man hours = (average setup time * man occupation for setup) + (cycle time * quantity planned input * man occupation for production / routing quantity)

manual order system

An order system for items that are not planned by LN. You can manually create purchase orders and production orders for such items.

operation

One of a series of steps in a routing that are carried out successively to produce an item.

The following data is collected during a routing operation:

- The task. For example, sawing.
- The machine used to carry out the task (optional). For example, sawing machine.
- The place where the task is carried out (work center). For example, woodwork.
- The number of employees required to carry out the task.

This data is used to compute order lead times, to plan production orders and to calculate standard cost.

operation subcontracting

The work on one or more operations in an item's production process is outsourced to a subcontractor.

order controlled/single

A demand-pull system that regulates the supply of items to shop floor warehouses.

In this supply system, a specific production order for a specific product pulls the required items from a supply warehouse to the shop floor warehouse. A direct link is established between the production order for which the items are required, and the warehousing order that regulates the supply of the required items to the shop floor warehouse.

outbound-order line

A warehouse-order line that is used to issue goods from a warehouse.

An outbound-order line gives detailed information about planned issues and actual issues, for example:

- Item data.
- Ordered quantity.
- Warehouse from where the goods are issued.

phantom

An assembly that is produced as part of a manufactured item, and that can have its own routing.

A phantom is usually not held in inventory, although occasionally some inventory can exist. The planning system does not create material requirements for a phantom, but drives the requirements straight through the phantom item to its components. Phantoms are mainly defined to create a modular product structure.

Example

The door of a refrigerator is defined as a phantom item in the bill of material of a refrigerator. The materials of the door are listed on the production order's material list for the refrigerator.

planned production order

A planned order in Enterprise Planning to produce a certain quantity of an item.

planning cluster

An object used to group warehouses for which the inbound and outbound flow of goods and materials is planned collectively. For this purpose, the demand and supply of the warehouses of the planning cluster is aggregated. Within a planning cluster one supply source is used, such as production, purchasing or distribution.

If multisite is implemented, a planning cluster must include one or more sites. The site or sites include the warehouses for which the planning processes are performed. A site is linked to one planning cluster.

price book

An entity in which you can store price information that is valid for a given period of time.

A price book includes the following elements:

- A price book header, which contains the code, type, and use of the price book.
- One or more price book lines, which contain the items.

A quantity or value break discount schedule can be linked to a price book.

price matrix

A pricing structure that offers flexible criteria to define prices and discounts. You can set up additional prices for items in a price matrix.

production order

An order to produce a specified quantity of an item on a specified delivery date.

purchase contract

Purchase contracts are used to register specific agreements with a buy-from business partner that concern the delivery of specific goods.

A contract is comprised of:

- A purchase contract header with general business partner data, and optionally, a linked terms and conditions agreement.
- One or more purchase contract lines with (central) price agreements, logistic agreements, and quantity information that apply to an item or price group.
- Purchase contract line details with logistic agreements and quantity information that apply to an item or price group for a specific location (warehouse) of a multicompany corporation. Contract line details can exist only for corporate purchase contracts.

purchase order type

The order type determines which sessions are part of the order procedure and how and in which sequence this procedure is executed.

purchase requisition

A request by a user to obtain authorization for the procurement of goods and services.

A purchase requisition includes both standard and nonstandard material, cost, or service requirements. Information on a purchase requisition includes name, department, location, purchase office, and approver in the header section. The requisition line detail includes item, supplier, quantity, price, and amount.

A purchase requisition can be converted to one of the following:

- Purchase order
- Request for quotation (RFQ)

response line

A response to a request for quotation line, which includes a bidder's bid for the RFQ line. A bid offers goods or services for a certain price and terms of sale and can be considered as an offer to sell.

RFQ response

A response to a request for quotation, which includes one or more response lines with bids. A bid offers goods or services for a certain price and terms of sale and can be considered as an offer to sell.

routing

The sequence of operations required to manufacture an item.

For each operation, the task, machine, and work center are specified, as well as information about setup time and cycle time.

service subcontracting

Allot the service related work of an item to another company. The entire maintenance or repair process, or only a part of the same, can be allotted. Service subcontracting can be used with or without material flow support.

shop floor warehouse

A warehouse that stores intermediate inventory in order to supply work centers. A shop floor warehouse is linked to an individual work cell, an assembly line, or one or more work centers. A shop floor warehouse can be supplied with goods using replenishment orders, or by pull-based material supply.

The pull-based material supply methods are:

- **Order Controlled/Batch** (only applicable in Assembly Control).
- **Order Controlled/SILS** (only applicable in Assembly Control).
- **Order Controlled/Single** (only applicable in Job Shop Control).
- **KANBAN**.
- **Time-Phased Order Point**.

The items stored in the shop-floor warehouse are not part of the work in process (WIP). When items leave the shop floor warehouse for use in production, their value is added to the WIP.

subassembly

An intermediary product in a production process that is not stored or sold as an end product, but that is passed on to the next operation.

For subcontracting purposes, a manufacturer can send a subassembly to a subcontractor to carry out work on the subassembly. This subassembly has its own item code defined in the Item Base Data.

After work is finished, the subcontractor sends the subassembly back to the manufacturer. Also this reworked subassembly has its own item code defined in the Item Base Data.

subcontracted service

The auxiliary item code for recording subcontracting operations. Items of this type also belong to the administrative items. These items are non-physical items which are used to record the subcontracting costs.

subcontracting

Allowing another company (the subcontractor) to carry out work on an item. This work can concern the entire production process, or only one or more operations in the production process.

subcontracting rate

The rate that is used to calculate the subcontracting costs. How LN uses the subcontracting rate in the calculation depends on the calculation method:

- **Fixed Amount by Product**
- **Operation Rate**
- **Man Hour Rate**
- **Machine Hour Rate**

subcontracting rate factor

The subcontracting rate factor, together with the subcontracting base rate, determines the cost of subcontracting.

supplier price book

A standard purchase price book that is used to store the following:

- The default purchase price of an item by buy-from business partner, ship-from business partner, or both
- The prices copied from RFQ responses
- The default prices of items

supply system

A system that is used to coordinate the timely supply of goods to the production lines or assembly lines.

terms and conditions agreement

An agreement between business partners about the sale, purchase, or transfer of goods, in which you can define detailed terms and conditions about orders, schedules, planning, logistics, invoicing, and demand pegging, and define the search mechanism to retrieve the correct terms and conditions.

The agreement includes the following:

- A header with the type of agreement and the business partner(s).
- Search levels with a search priority and a selection of search attributes (fields) and linked terms and conditions groups.
- One or more lines with the values for the search levels' search attributes.
- Terms and conditions groups with detailed terms and conditions about orders, schedules, planning, logistics, invoicing, and demand pegging for the lines.

terms and conditions search level

A priority level for searching and selecting a terms and conditions line. Search levels include a selection of search attributes (fields) and linked terms and conditions groups.

user profiles (purchase)

The default data that is recorded by the user and influences the creation of purchase requisitions, requests-for-quotation, purchase contracts, purchase orders, purchase schedules, purchase releases, call-offs, and approval rules. This data determines the method of order entry, default values during order input, and so on.

warehouse transfer

A warehousing order to move an item between warehouses.

A warehouse transfer consists of a warehousing order of inventory transaction type **Transfer**.

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