

# Production Planning and Execution (PP)

Curriculum: Introduction to S/4HANA using Global Bike

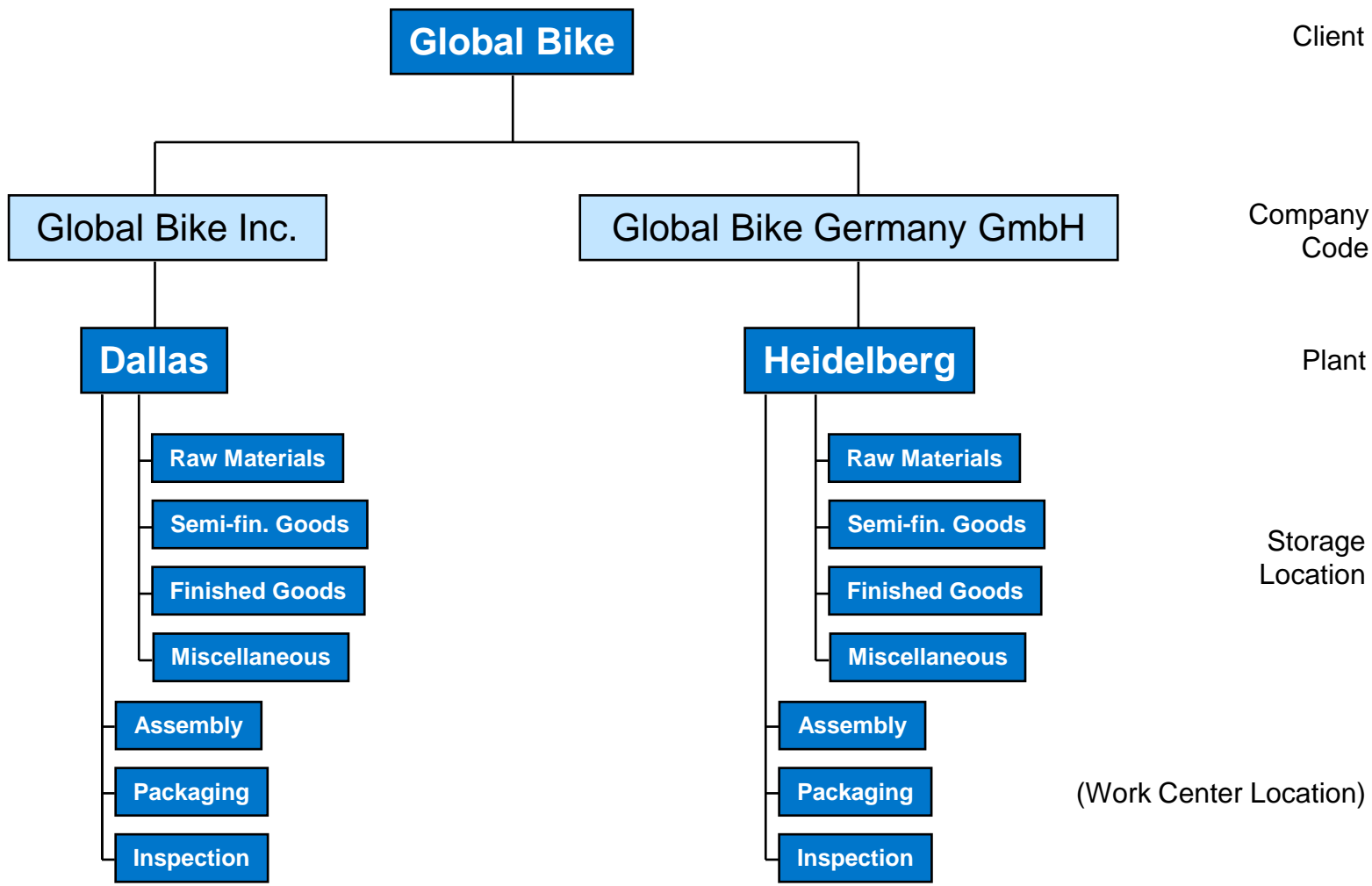


# PP Organizational Structure

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- Client
  - An independent environment in the system
- Company Code
  - Smallest org unit for which you can maintain a legal set of books
- Plant
  - Operating area or branch within a company
    - Manufacturing, distribution, purchasing or maintenance facility
- Storage Location
  - An organizational unit allowing differentiation between the various stocks of a material in a plant
- Work Center Locations (in SAP system → master data)
  - An organizational unit that defines where and when an operation is performed
  - Has an available capacity
  - Activities performed are valued by charge rates, which are determined by cost centers and activity types.
  - Can be machines, people, production lines or groups of tradespeople

# Global Bike Structure for Production Planning



# Bill of Materials (BOM)

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- List of components that make up a product or assembly
- Wheel Assembly
  - Tire
  - Tube
  - Wheel
  - Hex nut
  - Lock Washer
  - Socket Head Bolt
- Frame
- Derailleur Gear Assembly
- Seat Kit
- Handle Bar
- Pedal Assembly
- Chain
- Brake Kit
- Warranty Document
- Packaging



# Bill of Materials (BOM)

## ■ Single-Level

Material:

Men's Off Road Bike

Plant:  Plant Dallas

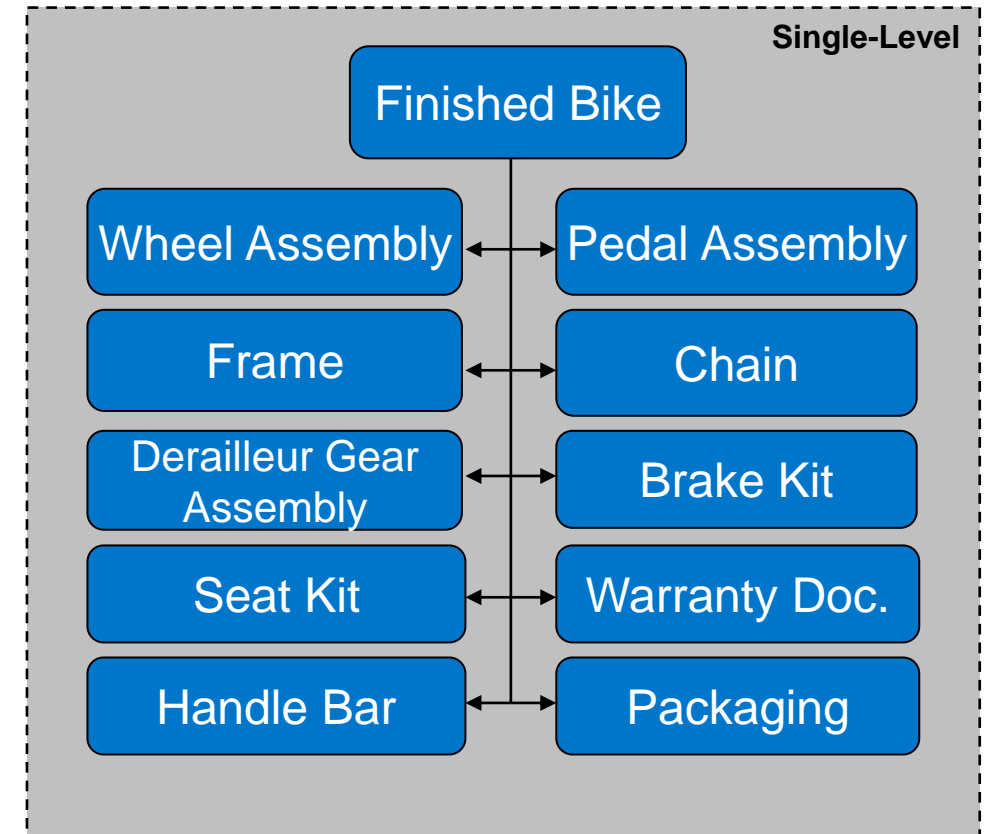
Alternative BOM:

Material

Document

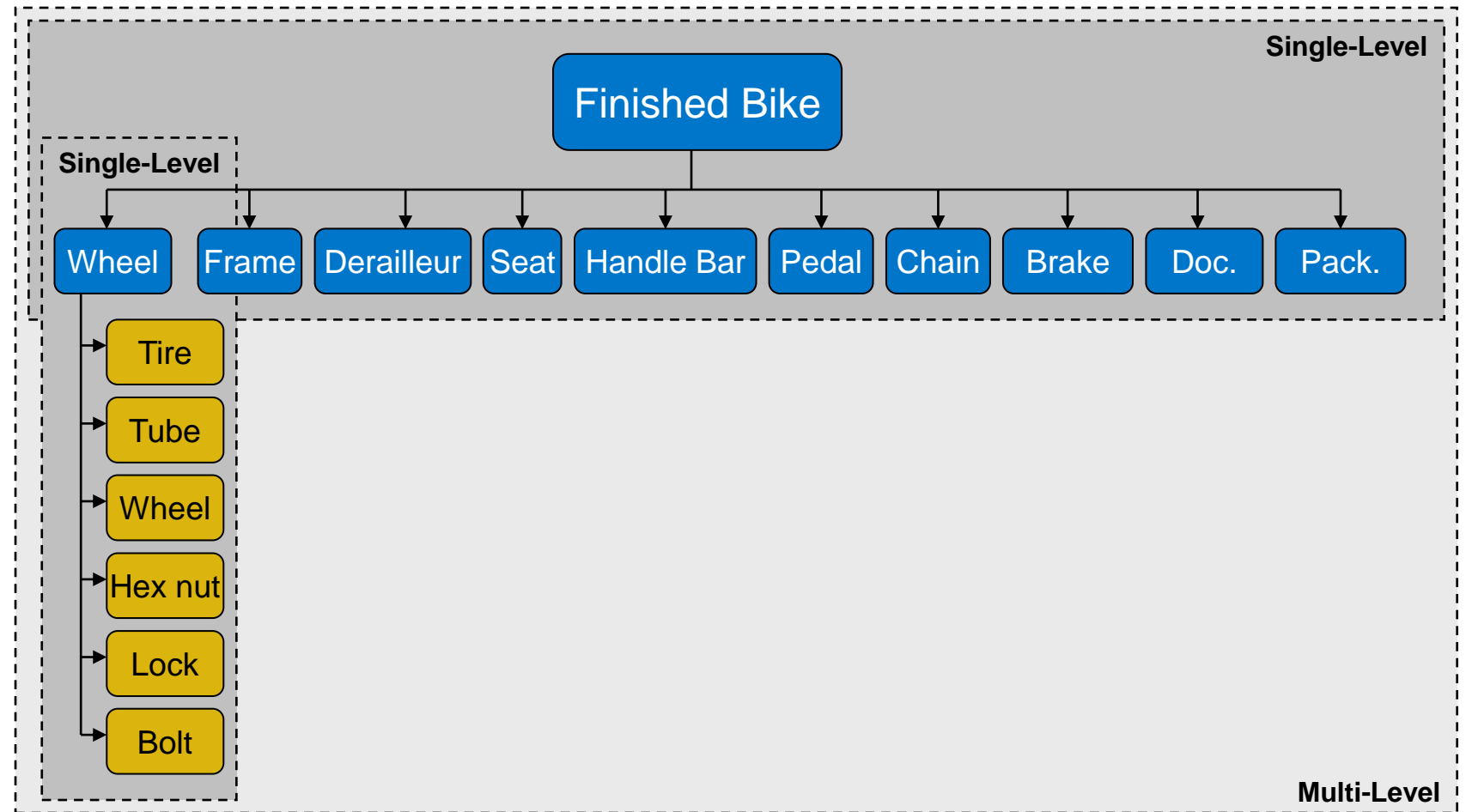
General

<input type="checkbox"/>	Item	ICt	Component	Component description	Quantity	U...
<input type="checkbox"/>	0010	L	<a href="#">ORWA1000</a>	Off Road Aluminum Wheel Assembly	2	EA
<input type="checkbox"/>	0020	L	<a href="#">OFFR1000</a>	Men's Off Road Frame	1	EA
<input type="checkbox"/>	0030	L	<a href="#">DGAM1000</a>	Derailleur Gear Assembly	1	EA
<input type="checkbox"/>	0040	L	<a href="#">ORSK1000</a>	Off Road Seat Kit	1	EA
<input type="checkbox"/>	0050	L	<a href="#">ORHB1000</a>	Off Road Handle Bar	1	EA
<input type="checkbox"/>	0060	L	<a href="#">PEDL1000</a>	Pedal Assembly	1	EA
<input type="checkbox"/>	0070	L	<a href="#">CHAN1000</a>	Chain	1	EA
<input type="checkbox"/>	0080	L	<a href="#">BRKT1000</a>	Brake Kit	1	EA
<input type="checkbox"/>	0090	L	<a href="#">WDOC1000</a>	Warranty Document	1	EA
<input type="checkbox"/>	0100	L	<a href="#">PCKG1000</a>	Packaging	1	EA



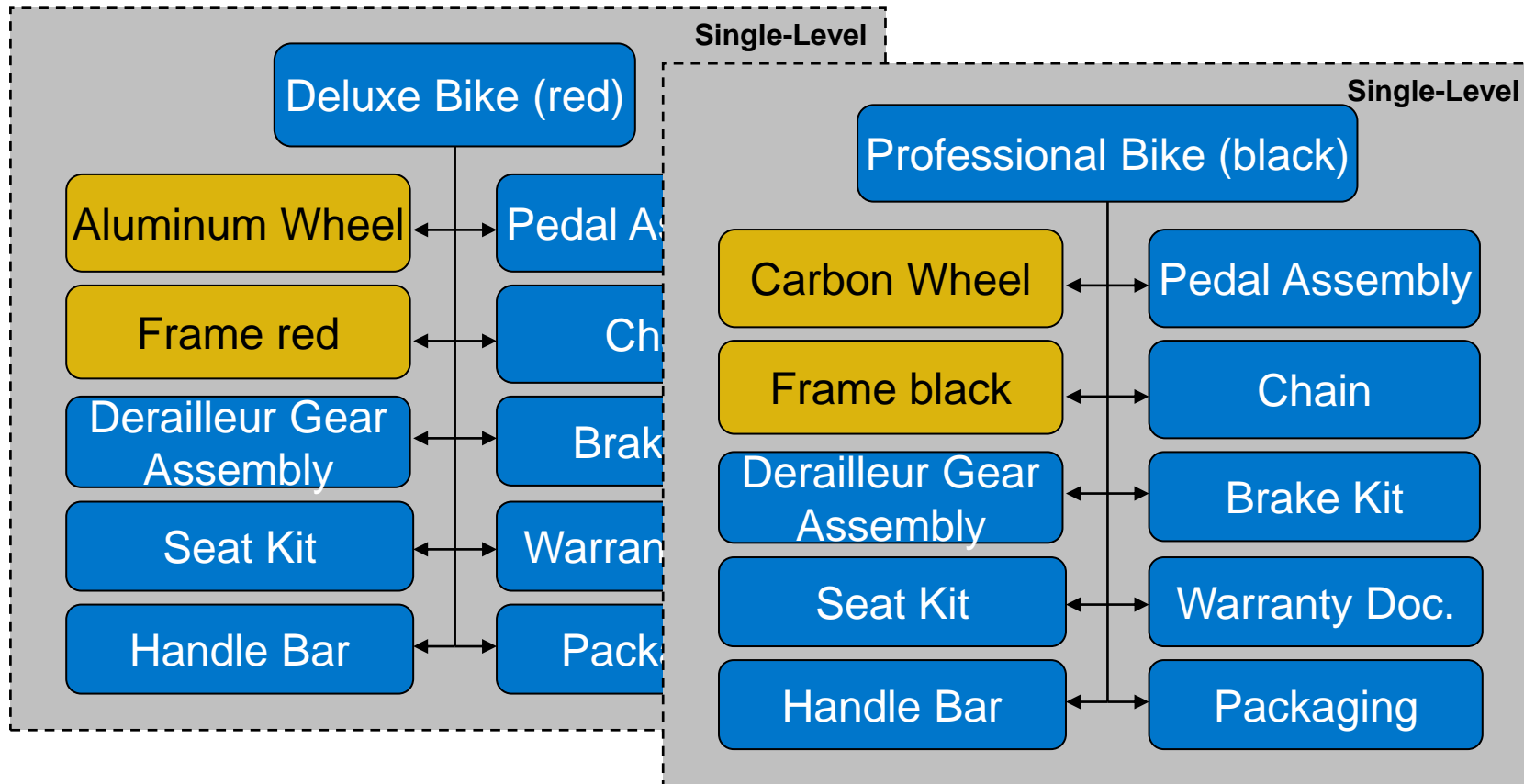
# Bill of Materials (BOM)

- Single-Level vs. Multi-Level



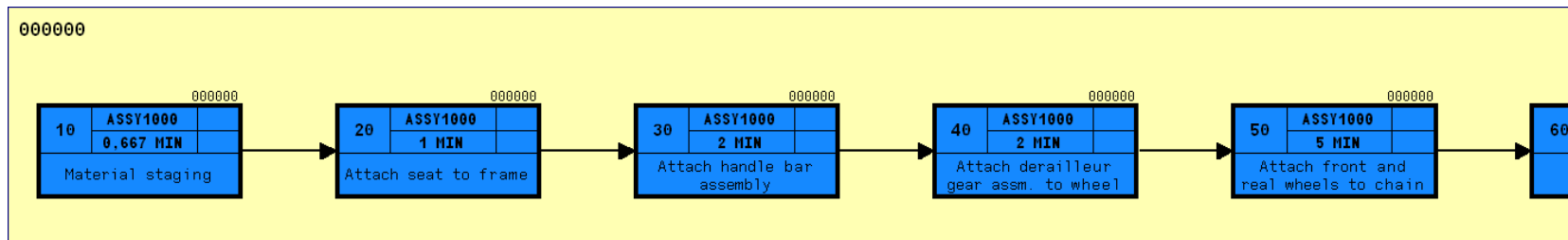
# Bill of Materials (BOM)

- Variant Bill of Materials (BOM)
  - Several products with a large proportion of identical parts.



# Routing

- Routings enable you to plan the production of materials (products).
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- Routings are used as a template for production orders and run schedules
- Routing are also used as a basis for product costing.
- Series of sequential steps (operations) that must be carried out to produce a given product
- Routings contain:
  - What, Where, When, How





# Routing

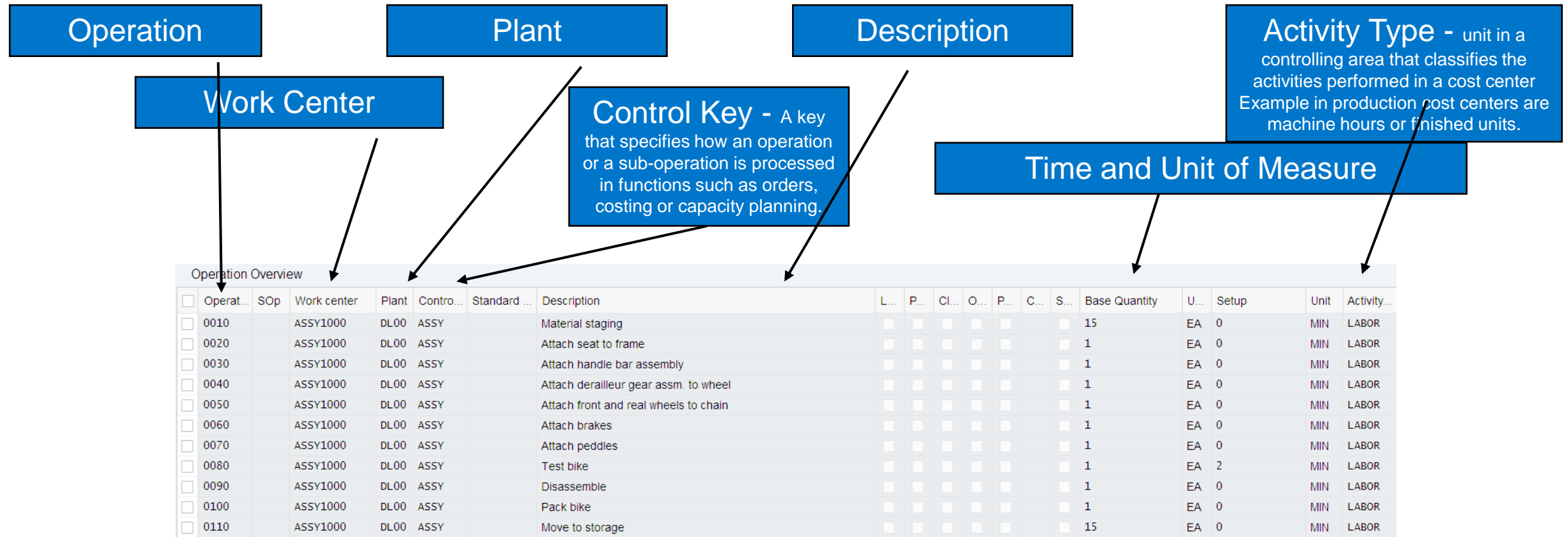
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- Routing – Operation 20
  - Attach seat to frame
- Work Center – ASSY1000
  - Assembly Work Center
- Time
  - 1 minute

20	ASSY1000	
	1 MIN	
Attach seat to frame		

# Routing

## ■ Routing for Finished Bike



# Work Center

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- A location within a plant where value-added work (operations or activities) are performed
  - Work Centers can represent
    - People or Groups of People
    - Machines or Groups of Machines
    - Assembly Lines
- Work center used to define capacities
  - Labor
  - Machine
  - Output
  - Emissions
- Capacities used in
  - Capacity requirements planning (CRP)
  - Detailed scheduling
  - Costing

# Product Group

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- Aggregate planning that groups together materials or other product groups (Product Families)
- Multi- or Single- Level Product Groups
  - The lowest level must always consist of materials

# Production Order

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- Production orders are used to control production operations and associated costs
  - Production Orders define the following
    - Material produced
    - Quantity
    - Location
    - Time line
    - Work involved
    - Resources used
    - How to costs are settled

# Production Order

The screenshot shows the SAP 'Production order Create: Header' interface. Annotations highlight key areas:

- How**: Points to the 'Components' tab in the top navigation bar.
- What**: Points to the 'Material' field, which contains 'DXTR1000' and 'Deluxe Touring Bike (black)'.
- Components**: Points to the 'Components' tab in the top navigation bar.
- How many**: Points to the 'Total Qty' field, which contains '10'.
- Time Line**: Points to the 'Confirmed' date and time field in the 'Dates/Times' section.

**Production order Create: Header**

Order: %000000000001

Material: DXTR1000 Deluxe Touring Bike (black)

Status: CRTD MSPT RELR SETC

Type: PP01

Plant: DL00

General Assignment Goods Receipt Control Dates/Qties Master Data Long Text Administration Items Fast Entry

**Dates/Times**

Basic Dates		Scheduled		Confirmed	
End:	16.04.2018 00:00	14.04.2018	13:39		
Start:	13.04.2018 00:00	14.04.2018	08:00		00:00
Release:		13.04.2018			

**Scheduling**

\* Type: 2 Backwards

Reduction: No reduction carried out

Note: Automatically carried out today scheduling

Priority:

**Floats**

Sched. Margin Key: 001

Float Bef. Prdn: 1 Workdays

Float After Prdn: 1 Workdays

Release Period: 1 Workdays



# Availability Check

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- Automatic check to determine whether the component, production resource tools, or capacities in an order are available
  - Can be automatic or manually executed
  - Determines availability on the required date
- Generates an availability log
  - Displays results of the check
  - Missing parts list
  - Reservations that could not be verified

# Schedule & Release

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- The time between scheduling and releasing an order is used for company checks and any preparation needed for the processing of the order
- Once an order has been released it is ready for execution, we can at this time
  - Print shop floor documents
  - Execute goods movements
  - Accept confirmations against the order

# Shop Floor Documents

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- Shop Floor Documents are printed upon release of the Production Order, examples would be:
  - Operation-based Lists
    - Time Tickets, Confirmation Slips
  - Component-based Lists
    - Material Withdrawal Slips, Pull List (consumption list)
  - PRT Lists
    - Overview of PRT's used and in which operations
  - Multi-Purpose Lists
    - Operation Control Ticket, Object Overview

# Material Withdrawal

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- When a production order is created it references a BOM to determine the necessary components to produce the material.
- It then places a reservation on each of the components.
- Upon release of the order (or operation) you can withdraw the reserved materials from inventory
  - Reservation is updated
  - Inventory is updated
  - Costs are assigned to the order as actual costs

# Confirmations

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- Confirmations are used to monitor and track the progression of an order through its production cycle
  - Confirmation can be done at the operation or order level
- Exact confirmation shortly after completion of an operation is essential for realistic production planning and control
- Data that needs confirmation include
  - Quantities – yield, scrap, rework
  - Activity data – setup time, machine time
  - Dates – setup, processing, teardown started or finished
  - Personnel data – employee who carried out the operation, number of employee involved in the operation
  - Work center
  - Goods movements – planned and unplanned
  - Variance reasons
  - PRT usage

# Goods Receipt

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- Acceptance of the confirmed quantity of output from the production order into stock
  - Effects of the Goods Receipt
    - Updates stock quantity
    - Updates stock value
    - Price stored for future valuation changes
    - Production order is updated
  - Three documents are created
    - Material document
    - Accounting document
    - Controlling document



# Order Settlement

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- Consists of settling the actual costs incurred in the order to one or more receiver cost objects
  - Receivers could include: a material, a cost center, an internal order, a sales order, a project, a network, a fixed asset
- Parameters for Order Settlement
  - Settlement Profile
    - Specifies the receivers, distributions rules and method
  - Settlement Structure
    - Determines how the debit cost elements are assigned to the settlement cost elements
- Settlement Rule
  - Automatically assigned on creation of order, the parameters are used to define this rule
    - Has one or more distribution rules assigned to it
    - Distribution rules defines: cost receiver, settlement share, settlement type

# Order Settlement

- Settling a Production Order to Stock
  - Debit posting is made to the Production Order with the value of the material
  - Difference between the debt posting and credit posting is posted to a price difference account

Material	Prod. Order	Price Diff.
80	100	20

\* Material Price is determined by the quantity produced times the Standard Price in the Material Master.

# Order Settlement

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- Costs analyzed
  - Primary
    - Materials
    - External Processing
  - Secondary
    - Production, Material, and Administrative Overhead
    - Labor
- Cost Analysis Reporting
  - Calculate and analyze planned costs, target costs, and actual costs of the production order.
  - Calculate and analyze variances



Thank you!

