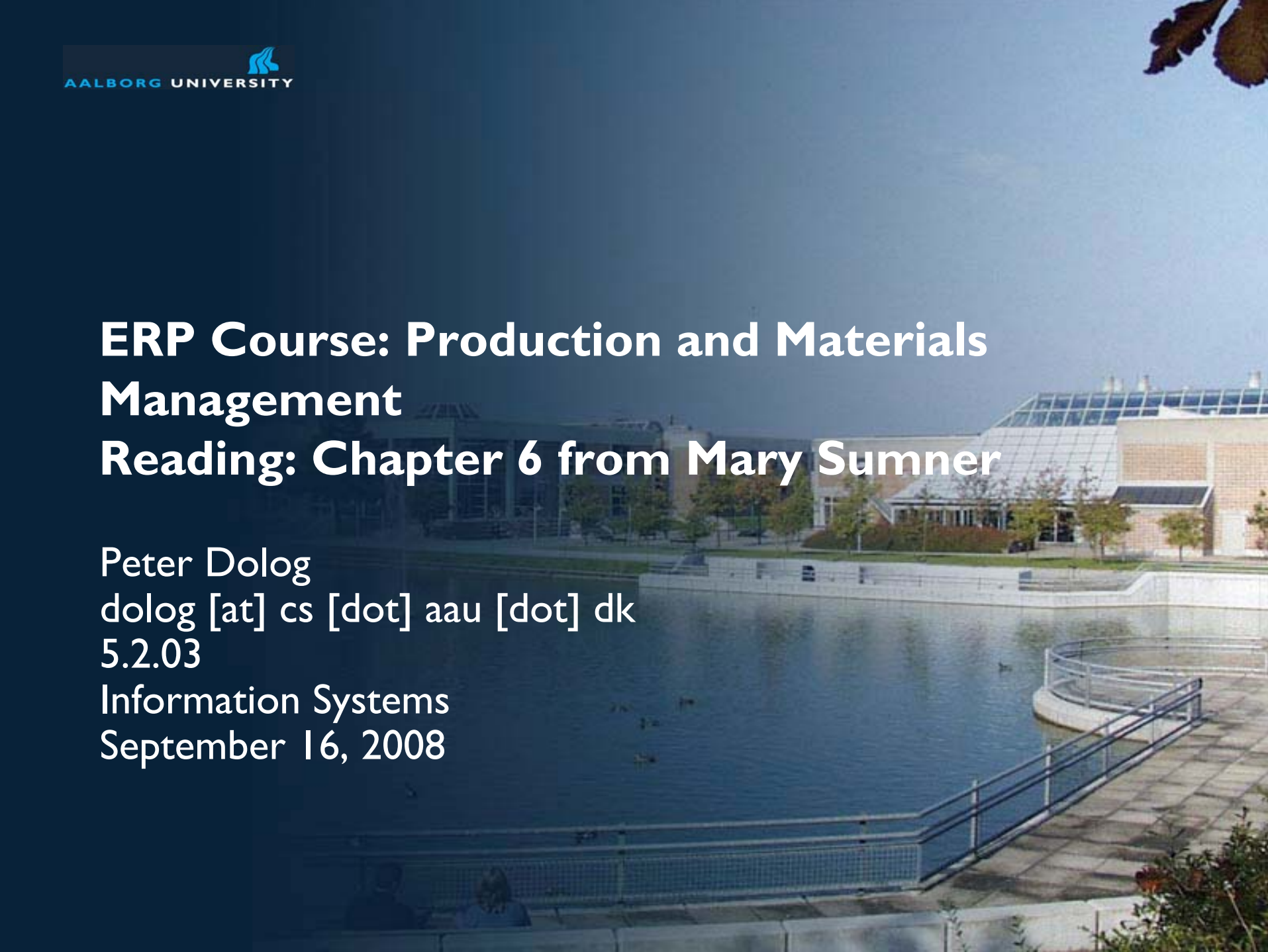
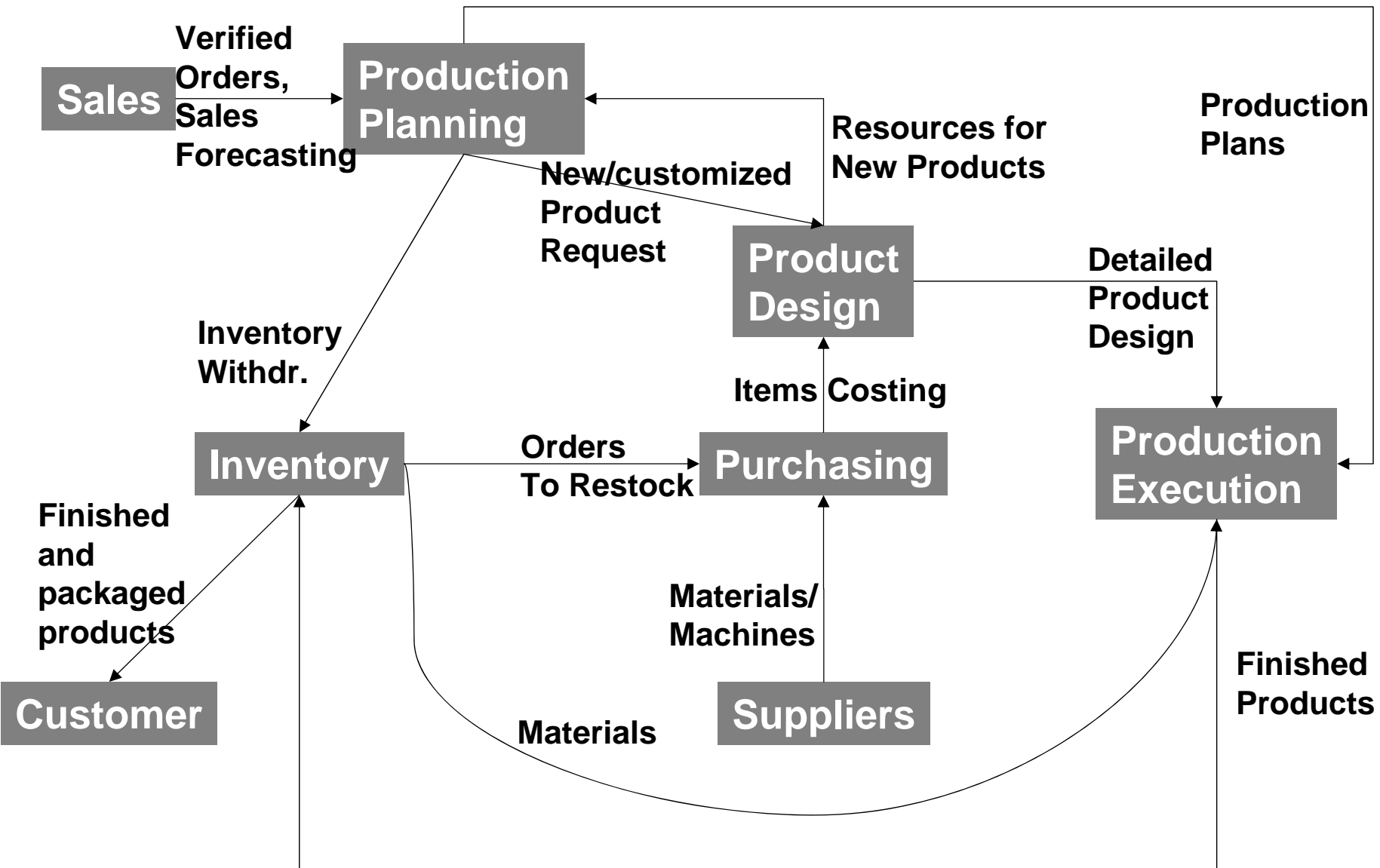


ERP Course: Production and Materials Management

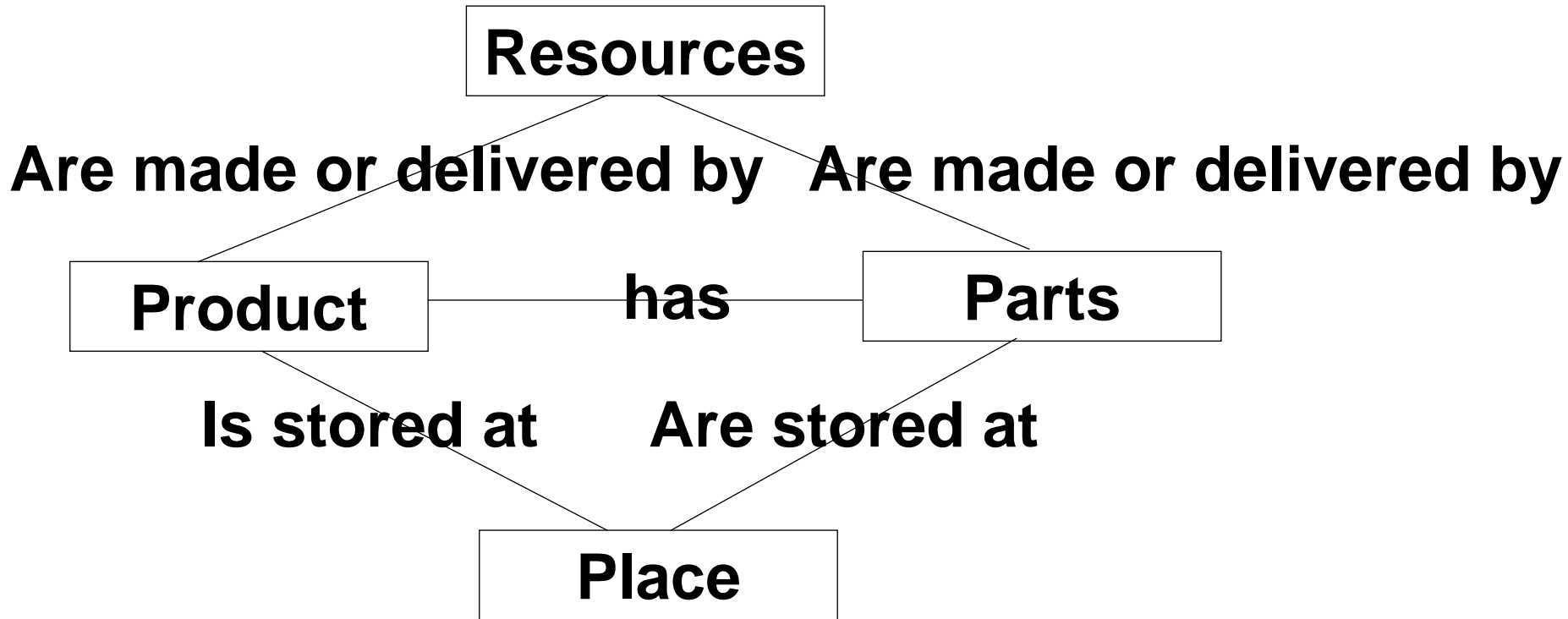
Reading: Chapter 6 from Mary Sumner

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5.2.03
Information Systems
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Products



Bill of Material (BOM)

Describes a product in terms of its parts and assemblies

This includes also packaging and labels

Hierarchy with references to other BOMs

Important for purchasing and configuration

Different types of BOMs (engineering BOM, manufacturing BOM, ordered BOM, ...)

Different ways to display it (ident, matrix, modular, ...)

Material Requirements Planning

Identify stock that planned production calls for

Determine the lead time to get the stock from suppliers

Calculate safety stock levels

Calculate the most cost-effective order quantities

Produce purchase order for needed stock items in the right amount

Inventory

Goods and Material available at stock for use

Three kinds (for sales):

- Raw materials
- Work in Process Items
- Finished Goods

Some companies also fixed assets (not directly used for sales)

Stored in warehouses or shops for customers

Managed and identified through the stock keeping units (SKUs)

SKU

Is an identifier used for systematic tracking of products and services offered

It is attached to a billable item:

- physical (item, variant, product line, bundle)
- service, fee or attachment

Different for each variant or packaging of the same product

Inventory Costs

Inventory is an asset on the company balance sheet

Additional costs:

- Space to store (e.g. rent)
- Insurance
- Utilities
- Different inventory depreciation schemes depending on a country law

These costs can be $1/3 - 1/2$ of the price

Tradeoff: to stock to little and to much

Some companies store more to inflate their apparent asset value

Opportunity Costs

Costs connected with lost opportunity to sell it
Need not to be assessed in terms of monetary value

Inventory Expenditures

When sold, the value of the inventory decreases

Usually value per item

First comes first goes for sales

Last comes last goes for sales

- Lower income, lower taxes

Warehouse Activities

Bin contents management

Receipts

Shipments

Product orders to manufacture

Restock/Purchase orders

Transfer orders

Item movements and transfers

Production

Set of customer orders which require products

They issue a request for materials, human resources and machines to perform the production

The production is based on BOM, resource allocation and work and machine centers utilization

The activities in the production results from a product design

The quantities, resource allocation and capacity estimation results from customer orders and sales forecasts

Production Planning

Production forecasts

Planning worksheets

Order planning

Requisition worksheets

Subcontracting

Production Forecasts

How many and which products are planned and in which quantities?

How much does it cost?

Where to get the parts from?

Further plans

Purchase orders

Subcontracting orders

Decomposition to capacity, resource and warehouse plans

Decomposition into BOM

Routing in the production between work centers and
warehousing (production process)

Production execution

Planned vs. real production time

Measuring and controlling activities at the manufacturing floor

Observing productivity and quality

Observing consumption and output

Feedback to production and planning

Adjustments according to changes in sales

Resource Planning

Pricing for unit of work

Price/Profit calculation

Resource capacities

Allocation to jobs

Capacity Planning

To plan personnel, space, machines, and other production facilities to meet production goals

Requires precise information about human resources, BOM, goods-in-process inventories, finished goods, lot sizes, status of raw materials, orders in the plant, lead time for orders

Master production schedule from sales forecast

Product design and development information systems

Strategies for Capacity Planning

Basic capacity plan includes number of workers, machines, shifts, utilization, and efficiency

Tries to deal with differences caused by customer demands and under/over utilized resources

Lead strategy (based on new customers)

Lag strategy (based on reaching maximum capacity)

Match strategy (based on tracking)

