

Enterprise Resource Planning

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**ERP Systems:
Production Planning**

Objectives

- o Understand **the production and materials management systems** within ERP.
- o Recognize the **interrelationships among business processes supporting sales and marketing, production and materials management, accounting and finance, and human resources.**

Problems in Production Planning

TABLE 1 Problems in Production Planning and Materials Management

<i>Subsystems</i>	<i>Problems</i>
Production Planning	Production planning may not be linked to expected sales levels; difficulty in adjusting production to reflect actual sales; difficulty in meeting anticipated sales demand
Production	Materials costs and labor costs can deviate from standard costs, and this will change manufacturing costs
Purchasing/Materials Management	Production manager may not be able to give the Purchasing/Materials Management manager a good production forecast
Accounting	Differences occur between standard costs and actual costs

PRODUCTION PLANNING AND MANUFACTURING PROCESSES

- 1. Producing the production plan**
- 2. Acquiring raw materials**
- 3. Scheduling equipment, facilities, and workforce** to process these materials
- 4. Designing products and services**
- 5. Producing the right quantity** and the required level of quality at the time required by production goals

Production Planning and Manufacturing Processes

TABLE 2 Production Planning and Manufacturing Processes

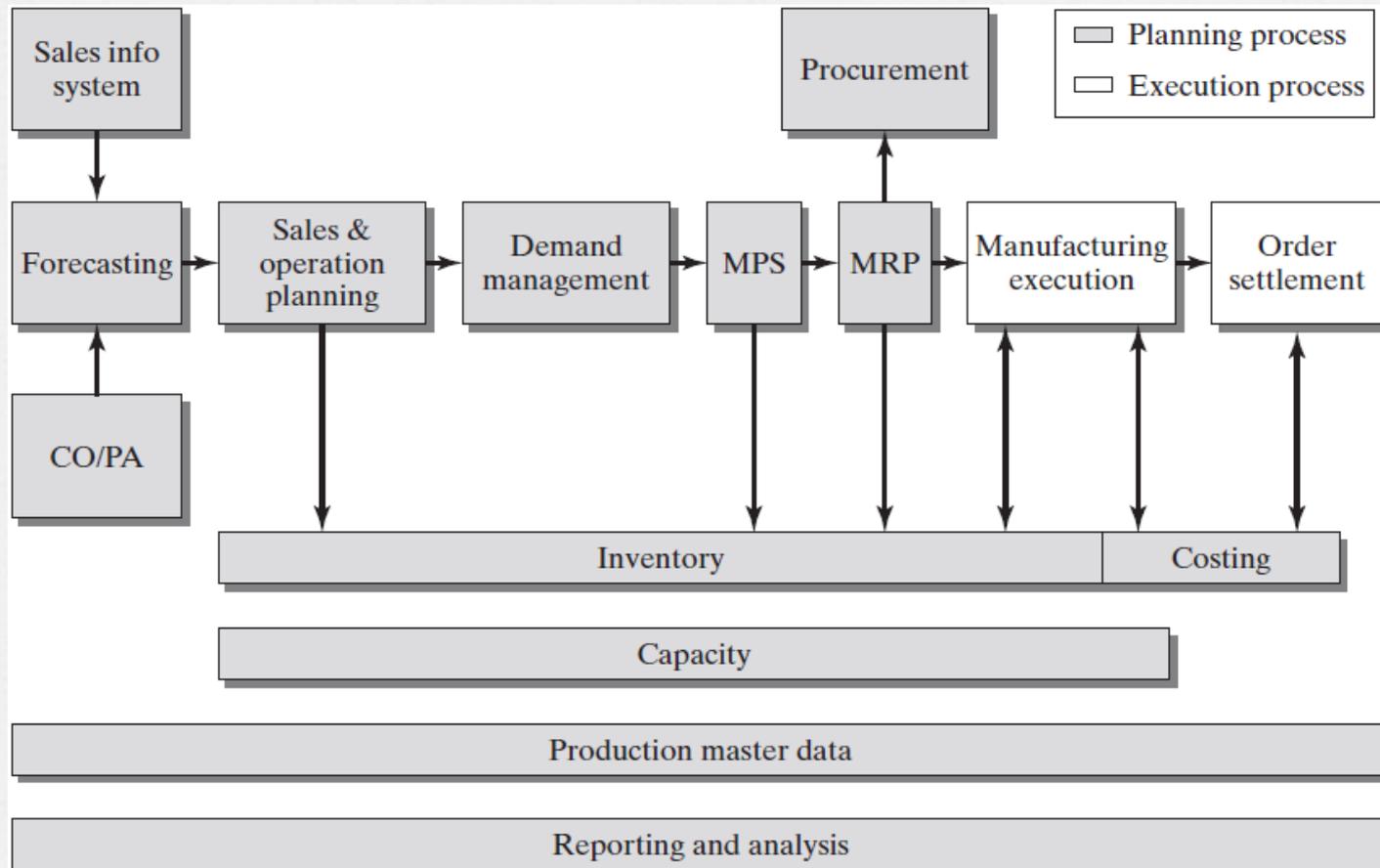
Operational	Purchasing Receiving Quality Control (QC) Cost accounting Materials management Inventory management/control
Management control	MRP Just-in-time (JIT) manufacturing Capacity planning Production scheduling Product design

How ERP Supports Production Planning

TABLE 4 How ERP Supports Production Planning

<i>Subsystems</i>	<i>How an ERP Works</i>
Sales Forecasting	Production has access to sales forecasts, so it can adjust production levels to actual sales if sales differ from expectations
Sales and Operations Planning	Determines if production facilities can produce enough to meet consumer demand
Demand Management	Breaks down the production plan into weekly production; produces the MPS, which is the production plan for finished goods
MRP	Determines the amount and timing of raw materials orders or subassemblies to support the MPS
Purchasing	Generates Purchase Orders for raw materials
Detailed Scheduling	Schedules production based on demand
Production	Uses the detailed schedule to manage operations
Accounting	ERP captures data on the shop floor for accounting purposes

ERP Systems: Production and Materials Management



Integration of Materials Management with Other Subsystems

TABLE 7 Integration of Materials Management with Other Subsystems

<i>Interface With</i>	<i>Interface Type</i>
Management Accounting	Purchase orders are assigned to a Cost Center
Financial Accounting	Purchasing maintains vendor data which are defined jointly with Financial Accounting
Sales and Distribution	When a Purchase Requisition is created, it is assigned to a sales order
Production Planning	Inventory Management posts components needed for production orders

Summary

- o The discussion of Production and Materials Management illustrates **how the production plan is based on the sales forecast.**
- o Once the **sales plan is developed**, then the **Demand Management function determines** the quantities and dates required for finished products.
- o **All of these Production and Materials Management processes are essential to ERP.**



**ERP Systems:
Human Resource**

Objectives

- o Understand the **Human Resources (HR)** processes supported by an **ERP** system.
- o Recognize the **interrelationships** among business processes supporting human resources, financial accounting, and other modules.

Problems with Human Resources

TABLE 1 Problems with Human Resources

<i>Subsystems</i>	<i>Problems</i>
Employee information	Need to query employee information to identify candidates with required skill sets
Applicant selection and placement	Need to develop selection criteria to provide a more stable workforce
Government reporting	Need to maintain and update data for government reporting requirements
Job analysis and design	Need to design positions, which will minimize turnover by providing breadth and depth of responsibilities
Compensation	Need to develop competitive salary and benefits packages for key positions
Benefits administration	Need to analyze alternative benefits scenarios to minimize costs and maximize employee loyalty and satisfaction

Business Processes Supporting Human Resources

TABLE 2 Business Processes Supporting Human Resources

HR Processes

Operational	Employee information; position control; application selection/ placement; performance management info; government reporting; payroll information
Management control	Job analysis and design; recruiting information; compensation; employee training/development

HUMAN RESOURCE MODULES IN ERP SYSTEMS

- o **HR Management records personnel activity** from the job application to retirement. Advanced systems can read résumés and enter pertinent data into the **database**.
- o **Benefits Administration links employee data to benefits data**, including employee benefit election data. Advanced systems enable employees to elect and update benefits' preferences via the web.
- o **Payroll produces paychecks, tax reports, and sends accounting data to the general ledger**.

HUMAN RESOURCE MODULES IN ERP SYSTEMS (Cont.)

- o **Time and Labor Management** collects data for **time/work** reporting.
- o **Employee Self Service** provides web-based self-service **reporting for travel** reimbursement, personnel data changes, **benefits enrollment**, and **training classes enrollment**.

Human Resource Processes Supported by ERP

TABLE 3 Human Resource Processes Supported by ERP

<i>Subsystem</i>	<i>How ERP Works</i>
Employee information	Maintains personnel information, including job history, salary, and retirement and benefit choices
Skills inventory	Maintains information on special skills, work experience
Position control	Defines each position within the organization; provides common job categories, descriptions, and specifications which can be used across the organization
Application selection/placement	Maintains information for recruiting, screening, evaluating, and selecting candidates for employment
Compensation	Maintains compensation data; maintains employee compensation changes (e.g., salary increases, salary history, job evaluation results, appraisal results)
Performance management	Maintains performance appraisal data and productivity data
Training and development systems	Tracks information about courses, instructors, students, and registrations; identifies training deficits and enables employees to book appropriate training
Government reporting	Provides reports in response to government statutes, including the Age Discrimination Act, the Equal Pay Act, the Occupational Safety and Health Act, the Family Leave and Medical Act
Payroll	Generates payroll and various statements

Human Resource Decisions Supported by an ERP System

TABLE 4 Human Resource Decisions Supported by an ERP System

<i>Subsystem</i>	<i>Questions and Decisions</i>
Recruiting	<p>Do we have any internal candidates with a B.S. in Marketing and with Spanish-speaking ability?</p> <p>What are our most effective recruiting sources (e.g., universities, web sites, referrals, search firms)?</p>
Job Analysis	<p>What are the characteristics of our most effective managers (e.g., educational background, experience)?</p> <p>What are the characteristics of information technology (IT) professionals whom we retain?</p> <p>What jobs experience the highest turnover?</p> <p>What skill sets are missing among our HR professionals?</p>
Compensation	<p>What salaries and compensation packages do we need to offer our sales representatives to be competitive in our industry?</p> <p>What is the impact of various pay plans on retention and promotion of personnel?</p> <p>What do external market surveys say about job pricing?</p>

Human Resource Decisions Supported by an ERP System (Cont.)

Benefits

How can we control the cost of employee health benefits?
Can we reduce employee benefit costs by providing self-selection of benefits?

Workforce development

What replacement personnel need to be planned for because of retirements?
What should the future workforce look like? What new skill sets will we need?
What additional human resources will we need in the short-term and long-term?
What are the implications of workforce needs for training and development?
What is the impact of a proposed merger on workforce development and retention?
What is the availability of a skilled workforce in various locations under consideration for the placement of a new factory?

INTEGRATION OF HR MODULES WITH OTHER MODULES

- o One of the **major benefits of an ERP** system is the **integration of modules**. In the case of **HR**, the **payroll**, compensation, and **expense** reimbursement subsystems are integrated with the **Financial Accounting Subsystem**.
- o This **saves needless duplication of effort** and provides a cost basis for making **HR decisions**.

Summary

- o **HR management, decision making**, and workforce development are among the **most strategic areas of focus today**. In the past, many human resource management systems have focused upon creating, maintaining, and updating personnel records.
- o This process was **so time-consuming** that it was difficult to use these data **for decision making**.
- o **With** the introduction of comprehensive, **integrated ERP systems with HR modules**, it is now **possible** to participate in **short-term and long-term workforce development** so personnel can be recruited, developed, compensated, and retained to meet overall organizational objectives.

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