
UNIT 10 IT PACKAGES IN SCM

Objectives

The objectives of this unit are to enable you:

- to know the importance of software packages in Business;
- to know the advantages and limitations of software packages of SCM;
- to know a few software packages such as BaaN, SAP, i2/RHYTHM; and
- to know a few success stories of software packages to the SCM.

Structure

- 10.1 Introduction
- 10.2 Role, Advantages and Limitations of Software Packages
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10.1 INTRODUCTION

Organizations have the opportunity to become more efficient and competitive. Skilled and creative managers are required to accomplish these goals. Today's MBAs need the knowledge and confidence to deal with issues related to technology. They must apply technology aggressively if they are to compete successfully in our global economy. They must take advantage of the ability that Manufacturing and Information Technology give them to change the way work is done.

During the past five years computers and communications technologies have proliferated in offices and homes. Organization distributes the responsibility for technology to all levels of management and to different geographic locations. As a result, managers from supervisor to CEO encounter information technology on a daily basis. Managers have to take advantages of the technology; they must make decisions about how to use the technology.

One of the most important parts of using the technology is the design of information systems. Much of the distribution of technology to end-users results from the rapid diffusion of personal computers or workstations. Users now would like to access a number of different applications on different computers through a LAN and probably the Internet as well.

Users may design systems for themselves alone, or they may be one of many users of a system designed by others. The design of multi-user applications is much more complex than the design of a personal computer system for an individual user. Many more people are involved in the process, each with unique

and often conflicting needs and expectations. Package programs are software written by a vendor to be sold to multiple customers. Packages have been available since the first days of computers, but there has been an explosion in their sale and use. One of the reasons for this proliferation is that the technology has matured. There are packages around today in their respective fourth or fifth (or more) version, each new version improving with earlier version. The other reason why the packages are going in popularity is the standards set by personal computer packages.

10.2 ROLE, ADVANTAGES AND LIMITATIONS OF SOFTWARE PACKAGES

The context in which software has been developed is closely coupled to almost five decades of computer system evolution. Better hardware performance, smaller size, and lower cost have precipitated more sophisticated computer-based systems. We have moved from vacuum tube processors to micro-electronic devices that are capable of processing 200 million instructions per second. Computer users as well as computer specialists often refer to software packages when they discuss how a system will be used. Software is the general term describing programs of instructions, languages, and routines or procedures that make it possible for an individual to use the computer. In a general sense, software is any prepared set of instructions that controls the operation of computer system for computation and processing. The term is often applied only to commercially prepared packages, as opposed to user-prepared instructions. Commercially prepared programs are developed by manufacturers or companies that specialize in software. Their primary purpose is to control all processing activities and to make sure that the resources and power of the computer are used in the most efficient manner.

Computer programs are sets of coded instructions that cause the computer to perform a series of operations that accomplishes a specific purpose. The programs are written in programming languages specially developed languages or commands that make it possible to specify calculations and other processing in terminology that can be converted to particular operations by the computer system. Fourth-generation languages are in wide spread use to supplement procedure oriented programming languages. Such language allows users to develop sophisticated programs for retrieval of data with only a fraction of the instructions needed when programs are written in procedure-oriented languages. Because they are much easier to use than traditional programming languages, fourth-generation languages are frequently utilized by non-programmers (such as managers).

As we approach the year 2000 plus, we can no longer look to the past as a guide to the future. In the face of strong market forces created by electronic commerce and mounting competition, corporations can no longer plod along historical tracks or seek the preservation of the status-quo. Companies are discovering that old solutions do not work with new problems. The business parameters have changed, and so have the risks and payoffs. A new computing paradigm is quickly emerging. It is called network-centric computing, Intranets, or distributed objects. The aim of it is to provide highly configurable, more fault-tolerant, more scalable, and more easily used solutions for enterprises than traditional client/server systems that have been able to deliver.

Despite its promise, supply-chain application software implementation is accompanied by the confusion and misconception that is inherent in any software and business method.

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The questions range from:

- What software is best suited for supply chain management?
- How can the costs involved and return on investment of a software be estimated?
- What are the key design issues in developing information architecture?
- How can software and management issues be aligned to gain the maximum value?

Of these, the most pressing question-facing companies is: what is the right technology that protects investment in a changing environment? The answer appears to lie in network-centric computing discussed in the following sections.

Activity 1

Get access to the following Web sites in the Internet and update your Knowledge on IT software packages in Supply Chain Management:

- www.manufacturingsystems.com
- www.mrp3.com
- www.sap.com/solutions
- www.i2.com
- www.lean-e-business.com

10.3 ARCHITECTURE OF 'SAP R/3 ERP' SOLUTION

A SAP product is a suite of standard software made up of individual programs that have been written to carry out computing tasks in the most efficient manner possible. SAP R/2 is a system for mainframes. The SAP R/3 has open system architecture and applies the client/server concept across multiple levels.

The SAP R/3 Basis (R/3 Standard System)

All R/3 installations include a set of components that form the core of the system and are referred to as R/3 Basis. It provides the users with a set of tools to build a suite of integrated programs that can be fitted exactly to the requirements of the company and modified as the company develops. Every implementation will need a SAP R/3 Basis module that provides the elements of the SAP R/3 runtime system. It includes the fundamental tools and functions of the R/3 Data Dictionary, the SAP R/3 Reference Model. The ABAP/4 Development Workbench and R/3 Customizing Component. When designing an implementation, the R/3 Reference Model is used to select which module components will be needed in the target system.

The SAP R/3 Applications

A SAP R/3 application is a set of programs that has been designed for a specific types of business data processing. Each application addresses a main sector of business activity, ranging from financial accounting to human resources. Under each application are grouped the modules most likely to be associated with the title of the application. However, the fully integrated design of all SAP

standard business programs allows great flexibility in the assembly of modules to form a specific implementation.

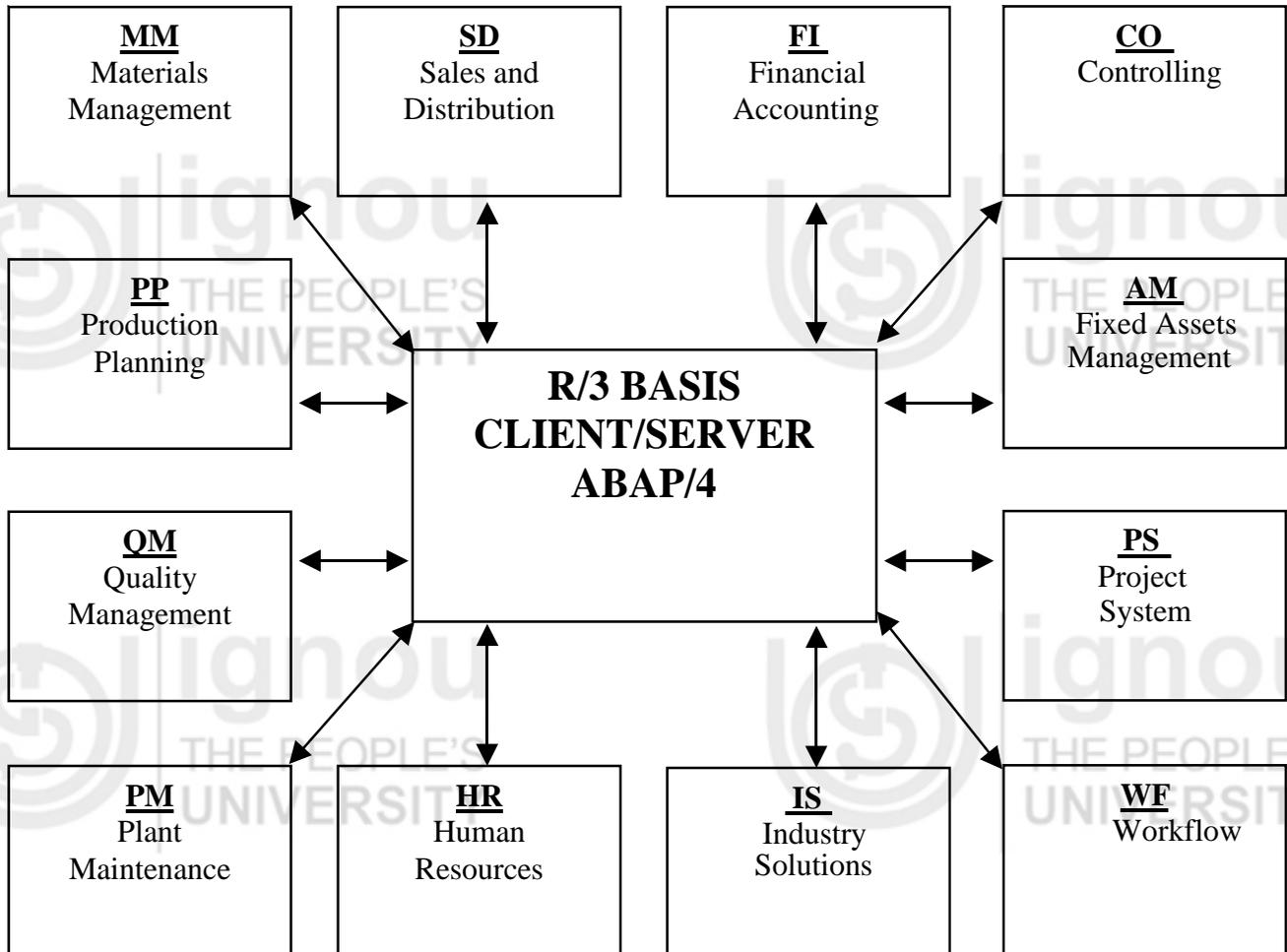


Figure 10.1 : Major SAP Application

Each application is fully integrated with the R/3 Basis. This allows each application to communicate with any other application. Some application modules depend on other applications. For example, the Controlling (CO) module depends on the Financial Accounting (FI) module. Some of the components of a module may be optional. Some of the functions within a component may be optional. This flexibility allows each R/3 installation to be built to fit exactly the unique requirements of the Client Company.

MAJOR R/3 APPLICATIONS AND THEIR MODULES

1) Financial Accounting (FI)

- General Ledger (FI-GL)
- Accounts Receivable (FI-AR)
- Accounts Payable (FI-AP)
- Legal Consolidation (FI-LC)
- Special Purpose Ledger (FI-SL)

2) Controlling (CO)

- Overall Cost Control (CO-OM)
- Product Cost Controlling (CO-PC)
- Activity-Based Costing (CO-ABC)
- Sales & Profitability Analysis (CO-PA)
- Project Control (CO-PRO)

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3) Fixed Asset Management (AM)
4) Project System (PS)

- Basic Data (PS-BD)
- Operational Structure (PS-OS)
- Project Planning (PS-PLN)
- Approval (PS-APP)
- Project Execution/Integration (PS-EXE)
- Information System (PS-IS)

5) Workflow

Workflow refers to the movement of work items through a series of operations that add value to these items. It also refers to the flows of information that must take place if this added value is to be optimized. A workflow management system is intended to manage business processes automatically or semi-automatically by controlling the sequence of activities. It should ensure that the appropriate steps are carried out at the right moment by specific people or groups, or by particular data processing programs and the machinery they control. SAP Business Workflow is devoted to developing and managing the flows of work and information that will make a business as effective and efficient as possible.

6) Industry Solutions (IS)

An Industry Solution is an enhancement of the standard R/3 system that may include some or all of the components of any R/3 applications, according to the sector of industry for which it has been designed. Some of the industry solutions offered by SAP are for the following sectors:

- Public Sector (IS-PS)
- Hospital (IS-H)
- Banks (IS-B)
- Oil (IS-OIL)
- Telecom (IS-T)
- Real Estate Management (IS-IS)

7) Human Resources (HR)

This application provide an integrated human resource management system through the use of the components of the Personnel Planning and Development (PD) module and Personnel Administration (PA) module.

Personnel Planning and Development (HR-PD)

- Organizational Management (PD-OM)
- Seminar and Convention Management (PD-SCM)
- Personnel Development (PD-PD)
- Workforce Planning (PD-WFP)

Personnel Planning and Development (HR-PD)

- Room Reservation Planning (PD-RPL)

Personnel Administration (HR-PA)

- Employee Management (PA-EMP)
- Benefits (PA-BEN)
- Compensation Administration (PA-COM)
- Applicant Manager (PA-APP)

Personnel Administration (HR-PA)

- Time Management (PA-TIM)
- Incentive Wages (PA-INW)
- Travel Expenses (PA-TRV)
- Payroll (PA-PAY)

8) Plant Maintenance (PM)

- Equipment and Technical Objects (PM-PRM)
- Preventive Maintenance (PM-PRM)
- Maintenance Order Management (PM-WOC)
- Maintenance Projects (PM-PRO)
- Service Management (PM-SMA)
- Plant Maintenance Information System (PM-IS)

9) Quality Management (QM)

- Planning Tools (QM-PT)
- Inspection Processing (QM-QC)
- Quality Certificates (QM-CA)
- Quality Notifications (QM-QN)

10) Production Planning (PP)

- Basic Data (PP-BD)
- Sales & Operations Planning (PP-SOP)
- Master Planning (PP-MP)
- Capacity Requirements Planning (PP-CRP)
- Material Requirements Planning (PP-MRP)
- Production Orders (PP-SFC)
- Product Costing (PP-PC)
- Kanban/JIT Production (PP-KAB)
- Repetitive Manufacturing (PP-REM)
- Assembly Orders (PP-ATO)
- Production Planning for Process Industries (PP-PI)
- Plant Data Collection (PP-PDC)
- Information System (PP-IS)

11) Materials Management (MM)

- Materials Requirements Planning (MM-MRP)
- Purchasing (MM-PUR)
- Inventory Management (MM-IM)
- Warehouse Management (MM-WM)
- Invoice Verification (MM-IV)
- Information System (MM-IS)
- Electronic Data Interchange (MM-EDI)

12) Sales and Distribution (SD)

- Master Data (SD-MD)
- Basic Functions (SD-GF)
- Sales (SD-SLS)
- Shipping (SD-SHP)
- Billing (SD-BIL)
- Sales Support (SD-CAS)
- Information System (SD-IS)
- Electronic Data Interchange (SD-EDI)

SAP Configuration and Customization by Applications Programmes

By itself the SAP program will not be very friendly to an individual user. It will not know what sort of business is to be conducted or exactly how the User Company wants to invoice and conduct other interactions with its customers. If the SAP implementation is to look and behave as if it really understands the company it is working for, it will have to be configured and customized. Naturally the SAP software expects to be told how to behave in a specific company and has standard routines, which help the company experts to set out what has to be done in a format that SAP can accept. The experts who do this are referred to as Applications Programmers or Applications Developers.

Development of SAP Product Range in Three Directions

- 1) A function within a SAP component may be elaborated so as to become a complex module. For example, the requirements of enterprise controlling can be met by the components of the Controlling (CO) module, but in addition, the Enterprise Controlling (EC) product is available as a separate module and includes functions not available in the Controlling (CO) module.
- 2) Extra integrating functions can be provided to interact with a group of SAP application modules. For example, the Logistics General (LO) module is designed to provide integrating functions for the following modules:
 - Sales and Distribution (SD)
 - Materials Management (MM)
 - Quality Management (QM)
 - Production Planning (PP)
 - Plant Maintenance (PM)
- 3) Where there are many companies in a particular sector of business that share a specialized requirement, a SAP partner may develop a specialized enhancement of the R/3 system that can be marketed as an “Industry Solution”.

10.4 ARCHITECTURE OF 'BAAN' ERP SOLUTION

Baan company's ERP solutions are available as BaaN IV (the older version) and BaanERP (the latest version). The architecture of both versions is described here.

10.4.1 BaaN IV

The BaaN IV software can run on many platforms, for example, it can run on various UNIX platforms supplied by HP, IBM, Sun, Digital, etc. It is also available on Windows NT. The software can use database provided by the software manufacturer, or, third-party databases such as Oracle or Ingress can also be used. Figure 10.2 shows the menu browser displayed to the user having access to all the packages of BaaN IV.

Menu Browser [User:]

- BAAN IV Common
- BAAN IV Finance
- BAAN IV Project
- BAAN IV Manufacturing
- BAAN IV Distribution
- BAAN IV Process
- BAAN IV Transportation
- BAAN IV Service
- BAAN IV Enterprise Performance Manager
- BAAN IV Enterprise Modeler
- BAAN IV Constraint Planning
- BAAN IV Tools
- BAAN IV Utilities
- Distributed Data Collection

Figure 10.2 BaaN IV Menu Browser

BaaN IV Common

The BaaN IV common package allows you to maintain the common master data. This data is used by all the BaaN IV packages. All the files that are used in more than one module are stored in this package. The BaaN IV common contains the following tables:

1. Logistic Tables
2. Financial Tables
3. Employee Master
4. Customer Master
5. Supplier Master

BaaN IV Finance

The finance package allows users to extract financial transactions from the sales and manufacturing areas and post them to the general ledger without having to key any transaction. It also has a budget system, and an activity base module. Following modules are included in the finance package:

1. General Ledger
2. Accounts Receivable
3. Accounts Payable
4. Cash Management
5. Fixed Assets
6. Financial Statement
7. Financial Budget System
8. Cost Allocation
9. Electronic Data Interchange (EDI)

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BaaN IV Project

BaaN IV project is designed to support the management of projects through all stages, from estimating tenders to delivery and throughout the guarantee period. It is especially suited to project-driven companies for the coordination of multiple projects. The goal is cost-effective management of each project according to the time schedule, within the specified budget and to the required quality.

Furthermore, allocation of personnel and equipment to projects is critical in cost-effective operation, which will maximize company profits. The project package provides all the tools necessary to control project accounting and planning. A planning requirement process accurately tracks costs for the project-related industries. This package is linked with all the software's other functions to provide the information necessary to successfully manage the project within the enterprise environment. It includes following modules:

1. Project Estimating
2. Project Definition
3. Project Budget
4. Project Planning
5. Project Requirements
6. Hours Accounting
7. Project Progress
8. Project Monitoring
9. Project Invoicing

BaaN IV Manufacturing

The manufacturing package provides all the manufacturing planning functions such as, MPS, MRP-I, and CRP. It can also provide control for all operations related to product's fabrication, labour management, and capacity required. The following modules are included:

1. Engineering Data Management
2. Item Control
3. Bill of Material Control
4. Routing
5. Cost Accounting
6. Master Production Schedule (MPS)
7. Material Requirements Planning (MRP)
8. Capacity Requirements Planning (CRP)
9. Repetitive Manufacturing
10. Shop Floor Control
11. Hours Accounting
12. Project Budget
13. Product Configuration
14. Product Classification
15. Project Control
16. Quality Management System

BaaN IV Distribution

The Distribution package is designed to take care of day-to-day logistical management in production and trade companies. The package is fully integrated with all other packages of BaaN IV. This package contains all the programs to create and manage the sales orders. It is a reliable source of information on market trends and developments. It also includes all the inventory related functions such as inventory control, location control, distribution requirements planning (DRP I), and replenishment control.

IT Enabled SCM**BaaN IV Distribution Package Contains the following Modules:**

1. Item Control
2. Cost Accounting
3. Purchase Control
4. Sales Control
5. Sales and Marketing Information
6. Electronic Data Interchange (EDI)
7. Replenishment Order Control
8. Inventory Control
9. Lot Control
10. Location Control
11. Distribution Requirements Planning
12. Tables
13. Common Data
14. Distribution Parameters

Characteristics of BaaN IV Distribution

1. Simple and fast data input and control
2. Extensive purchase and sales statistics
3. Comprehensive forecasts and planning techniques
4. Interface with the graphical module enterprise performance manager
5. Interface with EDI
6. Use of multiple currencies
7. Use of multiple warehouses
8. Multi-company solution including supply chain management.

BaaN IV Process

The Process package is designed to help manage the entire supply chain of any company operating in a process environment, such as the chemical industry. It helps manufacturers of identical product in different containers. It also helps to keep track of the various batches processed. It is able to account for the potency, the acidity, and the grade of items. Following are the modules provided in the process package:

1. Item Control
2. Formula Management
3. Routing
4. Cost Accounting
5. Capacity Requirements Planning
6. Production Management
7. Hours Accounting
8. Quality Management System

BaaN IV Transportation

The Transportation package helps in managing transportation orders and to maximize equipment use. It can handle all types of transportation modes. It has powerful modules for managing warehousing and packaging. It keeps track of transportation costs and determines cost trends. It includes the following modules:

1. Employee Control
2. Address Control
3. Transport Fleet Management
4. Transport Fuel Control
5. Hours and Expense Control
6. Central Data Entry
7. Transport Control
8. Invoicing Control
9. Packing Control
10. Electronic Data Interchange
11. Warehouse Control
12. Distribution Requirements Planning⁹

BaaN IV Service

The Service package can be used to manage all the repair and warranty information for supporting installations in the field. With this package:

- 1) You can register at which customers and locations specific installations are situated.
- 2) An installation bill of material that lists the components requiring servicing including their serial numbers and service history can be linked to each installation.
- 3) This data helps in analyzing the causes of malfunction in the fastest possible way.
- 4) You can create maintenance contracts and record warranties together with associated warranty terms for each customer.
- 5) Calls reporting malfunctions can be recorded even as you are on the phone.
- 6) Based on periodic maintenance obligations and calls a service plan is drawn and service job sheets are printed.
- 7) Finally, the service activities can be invoiced and a detailed service history is built up.

The modules included in this package are:

1. Service Tables
2. Installation Control
3. Contract Control
4. Service Order Control
5. Service Analysis Control
6. Item Control
7. Cost Accounting
8. Inventory Control

BaaN IV Enterprise Performance Manager

The enterprise performance manager (EIS) incorporates tools that are designed to given various levels of management access to the data in the BaaN IV tables. The data of the distribution, finance, and manufacturing modules are available in this module and they can be displayed using various formats.

- The tool can be used interactively to get an overview of the overall business performance by using Ishikawa fishbone diagrams.
- Via a flexible user interface the enterprise performance manager can drill down to the basic figures. These figures can be fetched from the integrated BaaN IV repository and can be linked to the persons responsible in the organization. A set of predefined performance indicators is available and new indicators can be defined very easily. The EIS module is fully integrated with the manufacturing, finance, and distribution modules.
- The enterprise performance manager is especially meant for middle and top management. It can be used as a business-benchmarking tool during BaaN IV implementation and optimization cycles (business process reengineering) and as a management and reporting tool at tactical and strategic level.

BaaN IV Enterprise Modeler (formerly known as Orgware)

Enterprise modeling is a process in which customers can map all the processes used and then develop an accurate and complete implementation plan.

BaaN IV Constraint Planning

The constraint-planning package provides planning functionality that takes into account capacity and materials constraints. This package currently provides MPS functionality with both finite and infinite planning methods.

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BaaN IV Tool

The Tools package consists of all the programs designed to maintain and customize the application. The form manager, report writer, and sessions manager are the options that allow the developers to tailor BaaN IV to user's needs. It also includes programs to manage the database, devices, and user profiles. Following modules are included in the Tools package:

1. Software Installation
2. Application Configuration
3. User Management
4. Device Management
5. Job Management
6. Database Management
7. Audit Management
8. Text Management
9. Menu Management
10. SQL Queries
11. Business Objects
12. Application Customization
13. Application Development
14. Terms and Definitions
15. Translation
16. Documentation
17. Conversion
18. Software Distribution
19. Desktop Management

BaaN IV Utilities

The existing utilities allow users to easily import or export information between BaaN IV and any other system. This package facilitates the implementation of the software by helping in creation of master files imported from other software. This package has tools to facilitate the communication between BaaN IV and other databases, spreadsheets, etc. This module can also be used to convert data of older versions of the application to new versions. The exchange module can be very useful for multi-site applications as it facilitates the communication between two sites. In short this package provides the needed bridge between all other sources and BaaN IV and includes following modules:

1. Import Module
2. Export Module
3. Generate Exchange Scheme

Distributed Data Collection

This package allows the users to interface between BaaN IV and third party data collection such as vendor's data collection systems. This allows for the collection of data through the use of devices such as laser scanners etc. with the real time update of the interfacing BaaN IV module. The data collection vendor must supply an interface to BaaN IV to create a functional solution.

10.4.2 BaaN ERP

Baan ERP, the successor to BaaN IV has the following enhancements, as claimed by Baan Co., over the older version:

- 1) Order to Cash foundation for all Baan business solutions.
- 2) Open Component Architecture
- 3) Fully integrated allowing for consistency and visibility across the enterprise
- 4) Comprehensive international capabilities, supporting multiple languages, tax structures and currencies including the Euro.
- 5) Modular components that allow for incremental implementation and migration.

BaaN ERP Includes the Following five Components:

- (a) Manufacturing (b) Finance (c) Project
(d) Distribution, and (e) Tools.

A. BaaN Manufacturing**BaaN ERP Manufacturing Module Includes:**

- | | |
|--------------------------------|---|
| 1. Bills of Material | 10. Project Budgeting |
| 2. Cost Price Calculation | 11. Project Control |
| 3. Engineering Change Control | 12. Repetitive Manufacturing |
| 4. Engineering Data Management | 13. Routings |
| 5. Hours Accounting | 14. Shop Floor Control |
| 6. Product Classification | 15. Tool Requirements, Planning and Control |
| 7. Product Configuration | 16. Capacity Requirements Planning* |
| 8. Production Control | 17. Master Production Scheduling* |
| 9. Production Planning | 18. Material Requirements Planning* |

* These modules come with extensive enterprise planning capabilities

Benefits

- 1) Open architecture design allows for a seamless and simplified integration with popular CAD packages via “BaanEngineering” elements.
- 2) Graphical simulations help analyze a ‘what if’ impact on financial requirements, capacity and inventory.
- 3) The system’s object orientated configurator supports different production strategies.
- 4) Planning is integrated at every level and across multiple sites allowing smooth and consistent operational activity.
- 5) Within a dynamic environment, enterprise planning simulates alternative plans and reactive planning.
- 6) Planning and tracking capabilities are extended to improve production resource management issues such as inventory.
- 7) The integrated quality management tool enables a wide range of statistics (from raw material to finished goods) to be monitored resulting in continuous improvement in manufacturing quality.
- 8) Multiple valuation methods help the company identify cost drivers and reduce product costs.

B. BaaN Finance

BaaNERP Finance module is designed to meet dynamic financial management and reporting requirements around the world. It includes:

- | | |
|-------------------------------|--------------------|
| 1. Accounts Payable | 6. Fixed Assets |
| 2. Accounts Receivable | 7. General Ledger |
| 3. Financial Budgets System | 8. Cost Accounting |
| 4. Cash Management | 9. Sales Invoicing |
| 5. Financial Reporting System | |

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Benefits

- 1) This independent system allows for easy solution configuration to meet changing business strategies.
- 2) Integration with Hyperion financial software provides advanced budgeting, consolidation, reporting and analysis.
- 3) BaaN Accounts Payable streamlines vendor payments. It supports checks, electronic banking and payment on consumption.
- 4) Accounting operations are simplified and duplicate data entry is eliminated with parameter-driven posting and updating tools.
- 5) Superior visibility enables the company to immediately focus and act on financial information to help increase margins, revenue and cash flows.
- 6) International business requirements are met with the use of multi-dimensional ledger and dual sets of books.
- 7) Provides cost analysis and cost allocation functionality on both at detailed and summarized levels.
- 8) Costs can be proactively tracked via budget links.
- 9) Multi-currency functionality allows the company to hold up to 3 home currencies therefore complementing and complying with the Euro regulations.
- 10) Central point invoicing.

C. BaaN Project

The project module provides the control and visibility the company needs for profitable operations from estimates and bids through site installation and maintenance. In addition the system supports project invoicing for all the different contractual agreements found in project environments. Baan Project Module includes:

- | | |
|-----------------------|----------------------------------|
| 1. Project Budget | 5. Project Monitoring |
| 2. Project Definition | 6. Project Planning |
| 3. Project Estimation | 7. Project Progress |
| 4. Project Invoicing | 8. Project Requirements Planning |

Benefits

- 1) Real time control of all aspects of project management
- 2) Integration of project management and manufacturing resource enhancing visibility and timely consolidated reporting.
- 3) The link with Baan Manufacturing allows all the relevant, cross functional information about each project to be easily accessible for effective enterprise resource management.
- 4) An integrated planning and scheduling system environment results in activity networks to be defined, resources to be allocated, and 'what if' analysis to be conducted.
- 5) Organizational, logistical and contractual structures can be modeled and the resulting project activities report, which results in effective cross-functional management.

D. BaaN Distribution

To help develop the best solution for meeting customer requirements and balancing business constraints, this component manages the entire spectrum of 13

distribution, sales, and logistics for manufacturers and distributors. BaaNERP Distribution modules includes:

1. Sales Management
2. Purchase Management
3. Warehouse Management

Benefits

- 1) Extensive simulation capabilities optimize purchasing and internal inventory decision making.
- 2) Top-down planning supports any distribution strategy.
- 3) With integrated workflow management and order templates, order processing is speeded up.
- 4) Shipping constraints, order blocking algorithms and multi-level ATP component checks are supported by the system.
- 5) Integration with the Aurum Front-Office suite enhances the capabilities of Baan Sales solution.
- 6) Purchasing is simplified with online requisitioning.
- 7) Sophisticated supplier contract and release management enable your company to take advantage of economies of scale.
- 8) EDI is key in enhancing the speeds of communication with trading partners as well as providing a solid link between distribution operations and manufacturing planning.

E. BaaN ERP Tools

All Baan applications are built using flexible BaaNERP Tools to handle business needs that require software or configuration changes. BaaNERP Tools includes:

1. Open System Tools
2. Client/Server Tools
3. End User Tools
4. Developer Tools
5. Documentation Tools
6. Translation Tools
7. Software Distribution
8. Implementation Tools

Benefits

- 1) BaaNERP enables quick reaction to new trends in the marketplace that require software or software configuration changes.
- 2) Helps in developing the Baan applications in such a way that they are kept independent of third party products.
- 3) Helps create tailored applications to meet special requirements.
- 4) Facilitates integration of Baan applications with third-party products.

10.5 SELECTING THE RIGHT ERP PACKAGE

1. The selection and implementation of ERP is primarily an operations management initiative and decision, not an IT or MIS project, hence it is critical that the chief executive officer (CEO), the vice president of manufacturing, and other key players be involved and support the chief information officer (CIO) in the ERP selection and implementation process. The selection team must have top-level representation from all major functional areas including production, distribution, finance and accounting, human resources, sales, marketing, customer service, and information systems.

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2. A project leader must be selected from among the team members.
3. The team must develop consensus on several critical issues that will shape the entire project budget, time frames, goals, and deliverables.
4. A tentative schedule should be prepared for the selection process and implementation.
5. The team should determine what critical business needs/problems the company is trying to address and what benefits are to be gained from ERP, some possible needs, problems, and benefits are:
 - Reducing inventory investment
 - Increasing fulfillment rate
 - Lowering transportation costs
 - Simplifying the manufacturing process
 - Gaining market share
 - New product planning and introduction
 - Customer service programs
 - Company downsizing
 - Company expansions into new areas or markets
 - Potential acquisitions
- 6) The team should then develop a document containing:
 - Total number of customers
 - Company's most significant business process – areas that set it apart
 - Company goals
 - A narrative on how the company conducts its business
- 7) By putting these business processes in the form of key (transaction) scenarios, potential vendors can prepare scripted demonstrations. This document helps in focusing the internal team's efforts and also becomes a valuable tool for potential ERP providers to understand the business and its needs.
- 8) The project team must determine its differentiating points to ensure that a vendor's product plays to those strengths.
- 9) The team should also find out which ERP packages the competitors are using or implementing.
- 10) After narrowing down the choices, the top two or three vendors should be invited to demonstrate how their products could be tailored to the specific work environment. The vendor should be asked to build and demonstrate business processes and transaction scenarios based upon the company needs.
- 11) Once the scripted demos narrow down the alternatives, team members must conduct site visits of the top ERP candidates' solutions to see the vendors working environments, gauge the vendors' commitment to training and customer services, and get a sense of their overall business philosophies.
- 12) Finally the project team must visit the sites of other companies that are using the particular ERP product to see how the software system functions in actual applications and assess vendor support, both during and after initial implementation.

10.6 i2 TECHNOLOGY

i2 Technology is the recognized leader in supply chain planning and optimization with more than ten years of experience in optimizing business process.

i2 emerged in 1988 as a supply chain management leader with innovative new products that streamlined the entire supply chain management process. Through consistent innovation and dedication to providing value, i2 has created the latest

business to business e-commerce applications that have changed the way companies are doing business. i2 is the established leader in SCM and intelligent eBusiness. For the second consecutive year, i2 has been named one of Forbes ASAP's Dynamic 100 software companies. i2 is the only company in the Leader's Quadrant in Gartner Group's "Supply Chain Planning Magic Quadrant.

i2's forward-thinking solutions consider the real conditions of companies to optimize every key business process—from product design to customer relationships. With industry leading customers and partners; i2 recently launched TradeMatrix, a collection of electronic market places dedicated to delivering advanced Business to Business solutions. TradeMatrix offers a full breadth of services that range from procurement, commerce, fulfillment, customer care, retail, product development and planning. i2's mission is to create \$50 billion in audited value and serving for its customers by the year 2005. The organization is well on its way to meeting its goal of \$50 billion in value, with an audited \$7 billion of value already documented as of October 1999. With i2 solutions, customers are able to attract and retain new clients, bringing the right products to market quickly and efficiently, and streamlining their entire supply chain.

Rhythm Solutions

i2 RHYTHM solutions offer the intelligent answer for decision-making across the enterprises. RHYTHM software optimizes and integrates Key business processes, while delivering intelligent e-Business through collaboration with trading partners. RHYTHM offers a complete solution for Business Process Optimization (BPO) by offering the optimization, integration, and forward visibility required for high-velocity business. The RHYTHM solution has delivered billions of dollars in measurable value for major companies in a wide range of industries. Historically, leading companies have achieved success by mastering one of the three core business disciplines:

- i) **Product Leadership:** Developing and launching innovative products at the right time, while managing the product life cycle from concept to phase-out.
- ii) **Operational Excellence:** Manufacturing and delivering the right products at the right time, while collaborating with trading partners at maximum efficiency.
- iii) **Customer Intimacy:** Engaging the right customers, managing their relationships and providing superior customer service.

In the past, a company could succeed by pursuing excellence in just one of these areas. Most e-Business solutions today focus on making promises with little or no consideration of integration across business process.

Rhythm Software Solutions

i2 consistently creates the standards that others adopt. Their thought leadership is evident in the innovations they have established over last decade. RHYTHM's holistic end-to-end solution provides the ability to segment the market on a product level, help buyers make sound decisions based on real-time availability of information, as well as personalize the entire shopping experience. These aspects, combined with i2's proven supply chain planning and optimization solutions, can transform any organization into a high-velocity eBusiness enterprise.

However, the terms of engagement have changed. Globalization, increasing competition and the Internet have added incredible velocity and complexity to today's business landscape. Velocity, or the ability to make intelligent decisions at high speed, is necessary in this real-time economy. What type of decision intelligence will give your company the velocity to achieve excellence in all areas

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of your business. Representing a natural extension of i2's recognized leadership in optimizing business processes RHYTHM provides advanced planning and optimization of the following key processes:

- i) **Product Life Cycle Management:** Rhythm product life-cycle management solution ensures product innovation for maximum market share and profitability. Companies that use their product lifecycle management solution will increase market share, increase profit margins and will reduce research and development costs.
- ii) **Supply Chain Management:** Rhythm's supply planning optimizes the match of supply to demand. Their SCM customers are able to reduce unnecessary expenses, improve revenue and meet fulfillment commitments.
- iii) **Customer Management:** Rhythm's customer management enables personalized, full-service eBusiness by managing all customer issues through one solution. Customer management offers companies the opportunity to maximize revenue, increase market share, reduce cost-of-sale and increase customer satisfaction.
- iv) **Inter Process Planning:** to integrate the above three processes, maximizing resource utilization and profitability.
- v) **Strategic Planning:** for accurate long-term decision-making and scenario-based analysis of competitors.

Tradematrix Solutions

Success in connecting the participants in a supply chain has been the driving force behind i2's most exciting solutions. TradeMatrix participants are able to harness the power of the Internet, create a competitive advantage and deliver on their promises to the customer.

With innovative solutions and core competencies, i2 is uniquely qualified to deliver the most robust eMarket places to the industry. TradeMatrix offers the following solutions.

1) TradeMatrix Procurement Solutions

TradeMatrix Procurement services is a hosted procurement service that reduces the cost of purchasing and procurement effort, while lowering inventory and decreasing the time-to-market for new products.

2) TradeMatrix Commerce Solutions

TradeMatrix commerce service enables personalized service. eBusiness by managing all customer issues through one solution. The commerce service allows participants to maximize revenue, increase market share, reduce cost-of-sale and ensure customer satisfaction.

3) TradeMatrix Fulfillment Solutions

TradeMatrix Fulfillment solution optimally responds to customer requests and intelligently manages customer orders. Its fulfillment solution allows participants to improve customer service and increase margins and profitability.

4) TradeMatrix Customer Care Solutions

The TradeMatrix Customer Care solution allows participants' customer to assess information quickly, resolve problems and receive support instantly.

5) TradeMatrix Retail Solutions

The TradeMatrix retail solution gives companies an opportunity to capture more demand, minimize product obsolescence and maximize storage effectiveness.

6) TradeMatrix Planning Solutions

TradeMatrix Planning solution is a service that enables companies to make better decisions across the entire value chain, increase revenues, decrease costs and improve ROA.

7) TradeMatrix Product Development Solutions

TradeMatrix Product Development solution allows companies to accelerate product innovation for maximum market share and profitability. Companies gain product margins, increase market share and show a reduction in R&D costs.

Activity 2

Fix an appointment with marketing personnel of either SAP, BaaN, or TCS software companies. Discuss in detail about ERP, i2, and SCM software products. This discussion may enlighten your knowledge on the price, implementation strategies, training, features and limitations of the software packages, and hardware requirements to run the applications for a company. Now, prepare a report on how to select software for a company's applications?

10.7 CONTRIBUTION OF THE SOFTWARE PACKAGES TO THE SCM

On the front lines between manufacturers and their customers, competition for market share has never been fiercer. In the past, strategies for improving corporate profitability and competitiveness have shifted from marketing-focused (1960's) to finance-focused (1970's) to operations-focused (1980's) methods. But in each case, as these methods were adopted and gained widespread acceptance, companies gradually reached parity, and these methods generated diminishing returns.

Today, corporations are looking beyond their "internal enterprise" to the extended "virtual enterprise" – the collection of trading partners who cooperate to provide products to customers – as the new frontier for improving responsiveness to customers and increasing market share. Pioneering efforts adopted in the early 1990's in the apparel industry (Quick Response) and grocery industry (Efficient Consumer Response) are now being applied in other industry segments, such as industrial machinery, metals, paper, automotive, and consumer electronics. Competitive initiatives are being formed between the members of extended supply channels to protect their position against alternative competing channels.

In order to enhance the competitiveness of its customers, the software developing companies intend to establish a leadership position as the premier provider of supply chain management software. Among many, i2, BaaN, SAP, etc. are the

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few companies committed for the contribution of the software packages to the SCM. For example, BaaN's vision of supply chain management extends for beyond traditional enterprise requirements planning (ERP) or advanced planning and scheduling (APS) capabilities, and includes customer interaction, sales force automation, demand management, vendor managed inventory (VMI), transportation planning, and web enablement applications.

It may therefore, be expected that the supply chain solutions provides the ability to optimize supply chain activities, monitor events based on actual execution, proactively visualize potential problems, and determine corrective action using advanced simulation and evaluation capabilities. The results of this analysis are then propagated upstream and downstream throughout the supply chain to keep material, production and transportation resources synchronized.

Activity 3

Visit any Manufacturing Organization, which proposes to go for ERP or equivalent software package. Discuss with the systems Manager to find out what preparations are required before implementation of software package. Prepare a report of your discussion.

10.8 SUMMARY

For a company experiencing accelerated growth, increasing the efficiency and visibility of the supply chain is the key to increasing productivity. Company pressures are creating significant impact on today's manufacturer. There are concerns for providing the customer with quality service, competitive prices, and timely product. More than ever, the company's competition is driving to find alternative ways to achieve these goals without sacrificing the quality of product.

The supply chain solutions discussed in this unit will completely integrate multi-plant planning and scheduling, and provide the ability for both centralized and collaborative planning and scheduling. This will enable supply-chain planning to exceed beyond the boundaries of a single corporation, and will feature "total scalability and configurability" which will address in a single solution the requirements of large manufacturers as well as those of mid-tier and small manufacturers. Technologies such as publish-and-subscribe over the Internet, as well as message passing are utilized.

Finally, the anticipated benefits of IT packages in SCM include:

1. Enterprise Benefits:

- Better management of complexity across the entire supply chain.
- Improved visibility and decision support for long-term capacity planning and capital investment.

2. Financial Benefits:
 - Reduced inventory costs.
 - Reduced operating costs through better utilization of resources.
 - Less waste, with better alignment of production with demand.
3. Shop floor Benefits:
 - Improved inventory management and control
 - More efficient production through optimized scheduling, enabling longer runs and fewer changeovers.

10.9 SELF ASSESSMENT QUESTIONS

- 1) What are the deciding factors for a manufacturing organization to switch from the current work practice to that of IT based?
- 2) What is the right technology that protects investment in a changing environment? Give your answer specific to an Indian Manufacturing Organization.
- 3) Identify suitable IT packages to suit small, medium, and large manufacturing organizations. Give your choices with justifications – both technical and economical.
- 4) What are the various modules of SAP R/3? Briefly discuss the content of each module.
- 5) Explain briefly each module of BaaN IV.
- 6) Compare and contrast ERP software products of at least two established brands.
- 7) Give important benefits of Manufacturing, Finance, and Distribution modules of BaaN IV.
- 8) How is the Project module of SAP R/3 comparable to that of BaaN IV?
- 9) How is the right ERP Package selected for a medium sized manufacturing organization?
- 10) Can ERP software package be applied in (i) Process Industry (ii) Service Industry? Why and why not?
- 11) Discuss i2 Technology software products for manufacturing applications. What salient features are found in i2 products?
- 12) Compare and contrast ERP software package of either SAP or BaaN with i2 package.
- 13) BaaN and SAP have ventured to enhance their software products for supply chain management environment. Is this a right approach? Why and why not?
- 14) What steps are to be followed while implementing IT software packages for supply chain management? Do these steps vary from package to package? How are they standardized?
- 15) In the IT based supply chain management, what criteria can be recommended to measure the performance of manufacturing organization? Explain the merits and demerits of your recommendations.

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