Transaction Processing, Functional Applications, CRM, and Integration

Management Information

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- Course: Management Information
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- D. of Information & Electronic Commerce

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01. Functional Areas

- Value Chain Perspective
  - The value chain model, views activities in organizations as either primary (reflecting the flow of goods and services) or secondary (supporting the primary activities).
  - The organizational structure of firms is intended to support both of these types of activities.
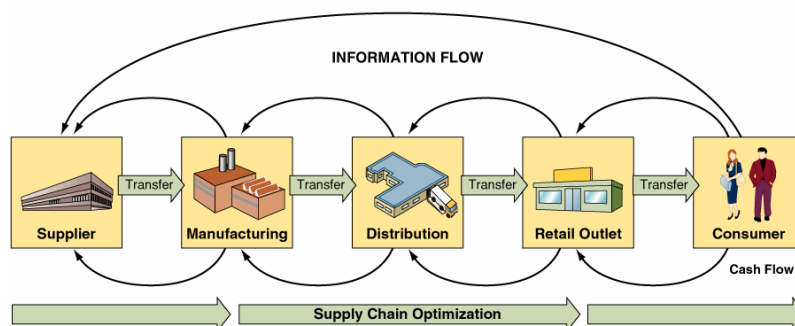
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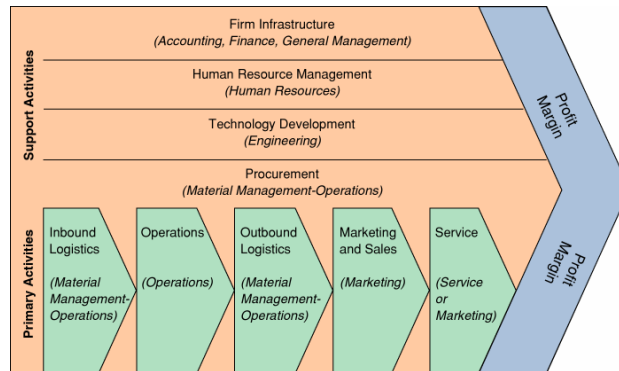
01. Functional Areas

- Supply Chain Perspective
  - The supply chain is a business process that links all the procurement from suppliers, the transformation activities inside a firm (the value chain) and the distribution of goods or services to customers via wholesalers and retailers.
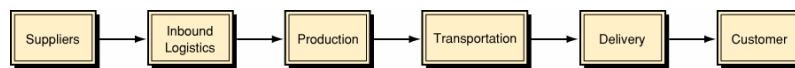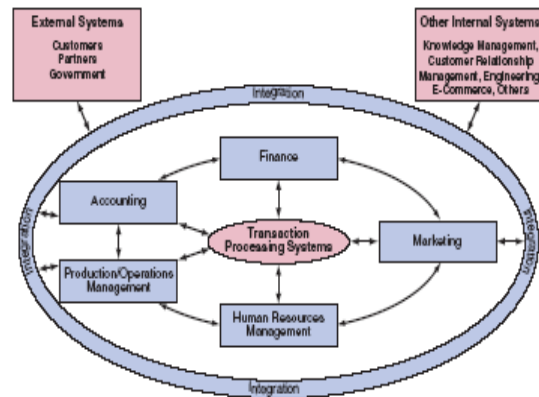

(a) Supply chain direct to customer

(b) Supply chain including wholesellers (distribution) and retailers

01. Functional Areas

- Functional Areas in a Business
  - Human resource management
  - Production/operation management
  - Accounting
  - Finance
  - Marketing
  - …

Information Technology for Management, Ed. 5, Efraim Turban et al., Wiley

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02. Functional Information Systems

- Functional Information Systems
  - Functional information systems support the organization, processes and business model.
  - Enterprise wide environment – all business units.


http://www.scribd.com

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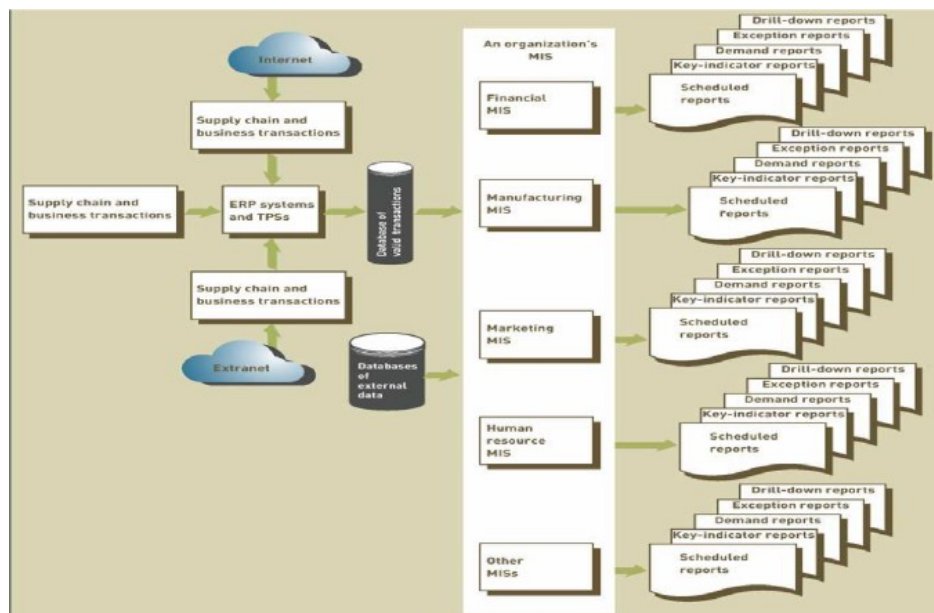
02. Functional Information Systems

- Functional Information Systems
  - Composed of smaller systems: A functional information system consists of several smaller information systems that support specific activities performed in the functional area.
  - Integrated or independent: The specific IS applications in any functional area can be integrated to form a coherent departmental functional system, they can be integrated across departmental lines to match a business process or be completely independent.
  - Interfacing: Functional information systems may interface internally with each other to form the organization-wide information system or externally systems outside the organization.
  - Supportive of different levels: Information systems applications support the three levels of an organization's activities: operational, managerial, and strategic

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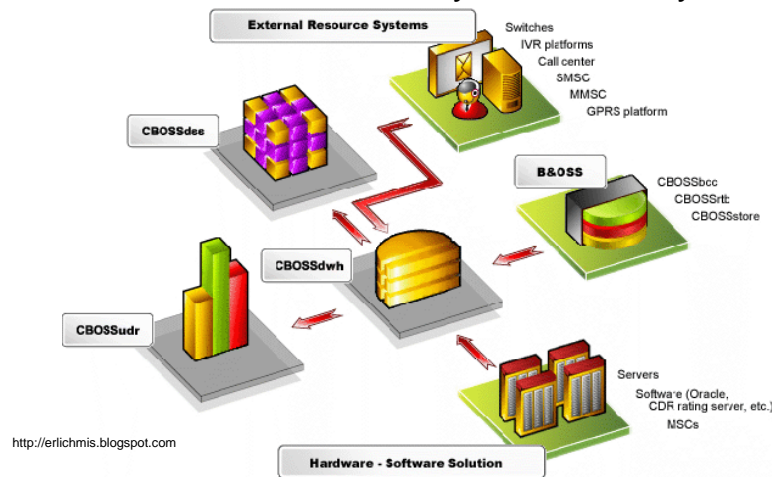# 02. Functional Information Systems

- Functional Information Systems
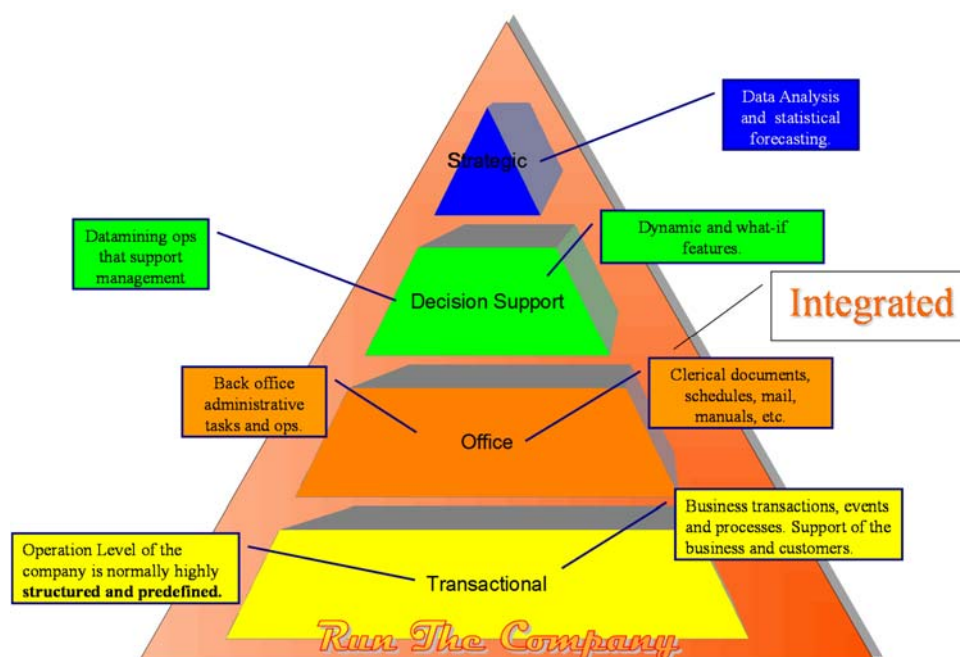
03. Transaction Processing Systems

- Transaction Processing Systems (TPS)
    - = Transaction processing information systems
    - In every organization there are business transactions that provide its mission-critical activities.
    - Each transaction may generate additional transactions.
    - Since the computations involved in most transactions are simple and the transaction processes are well defined they can be easily computerized.

http://erlichmis.blogspot.com
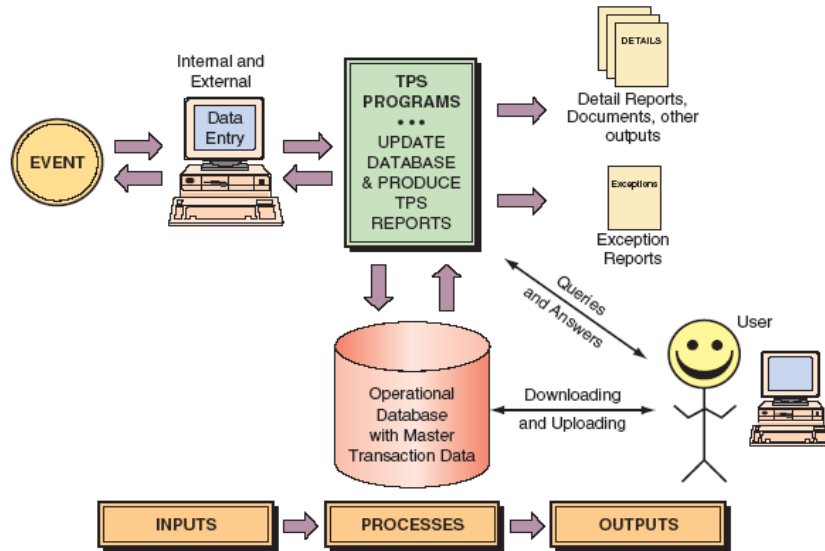
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03. Transaction Processing Systems

- Transaction Processing Systems (TPS)
    - The transaction processing system
        - Monitors
        - Collects
        - Stores
        - Processes
        - Disseminates information
    - for all routine core business transactions.

http://www.web-books.com
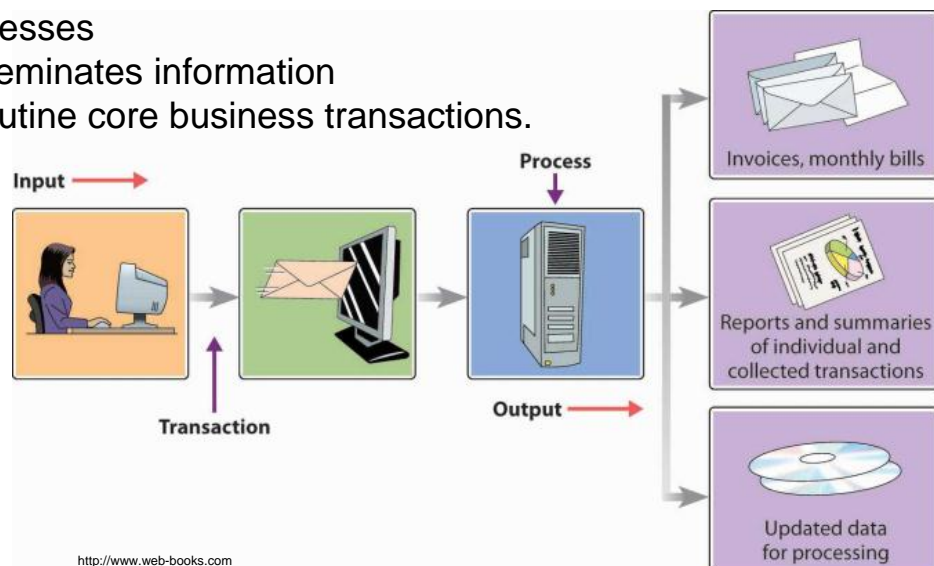
03. Transaction Processing Systems

• Goals
  • The primary goal of TPS is to provide all the information needed to keep the business running properly and efficiently.

Information Technology for Management, Ed. 5, Efraim Turban et al., Wiley
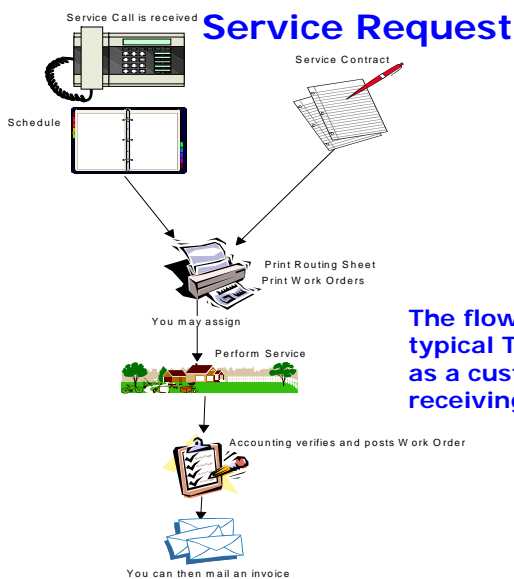
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03. Transaction Processing Systems

• Flow of Information
  • The processed information can be either a report or an entry in the database.
  • In addition to a scheduled reports, users can query the TPS for ad hoc information.
  • The system will provide the appropriate response by accessing the transaction database.
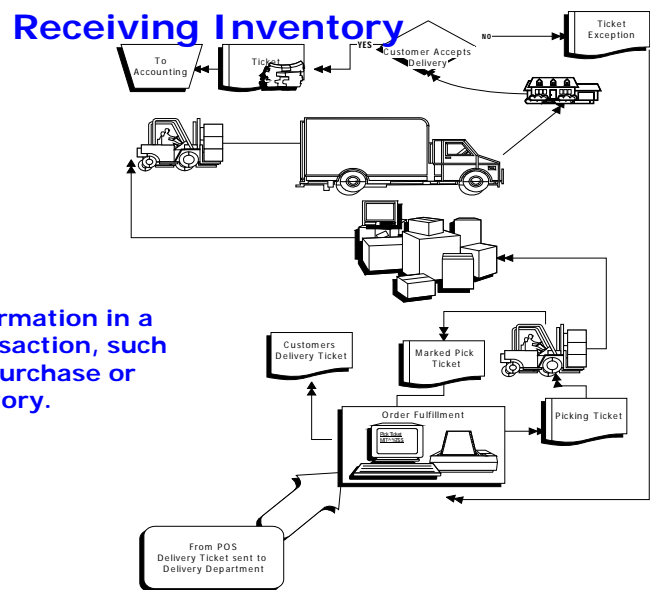

http://www.presstek.com

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03. Transaction Processing Systems

• Flow of Information

Service Request

Service Call is received

Service Contract

Schedule

Print Routing Sheet
Print Work Orders

You may assign

Perform Service

Accounting verifies and posts Work Order

You can then mail an invoice

The flow of information in a typical TPS transaction, such as a customer purchase or receiving inventory.

Receiving Inventory

Ticket Exception

To Accounting

Ticket

NO

YES Customer Accepts Delivery

Customers Delivery Ticket

Marked Pick Ticket

Order Fulfillment

Picking Ticket

From POS Delivery Ticket sent to Delivery Department

Information Technology for Management, Ed. 5, Efraim Turban et al., Wiley

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03. Transaction Processing Systems

• Online Transaction Processing (OLTP) Systems
    • With OLTP and Web technologies such as an extranet, suppliers can look at the firm's inventory level or production schedule in real time.
    • The suppliers themselves, in partnership with their customers, can then assume responsibility for inventory management and ordering.
    • Interactive Internet TPS expands OLTP to provide enhanced real time transaction processing over the Internet or intranets.
    • Multi-store chains can access a centralized computer system no longer requiring in-store processors.

Data

Database

Data

http://docs.oracle.com

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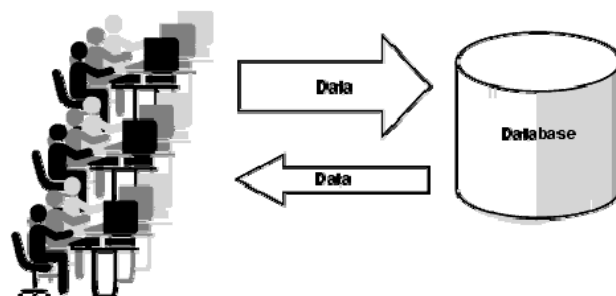
03. Transaction Processing Systems

• Typical Transaction Processing (Order)
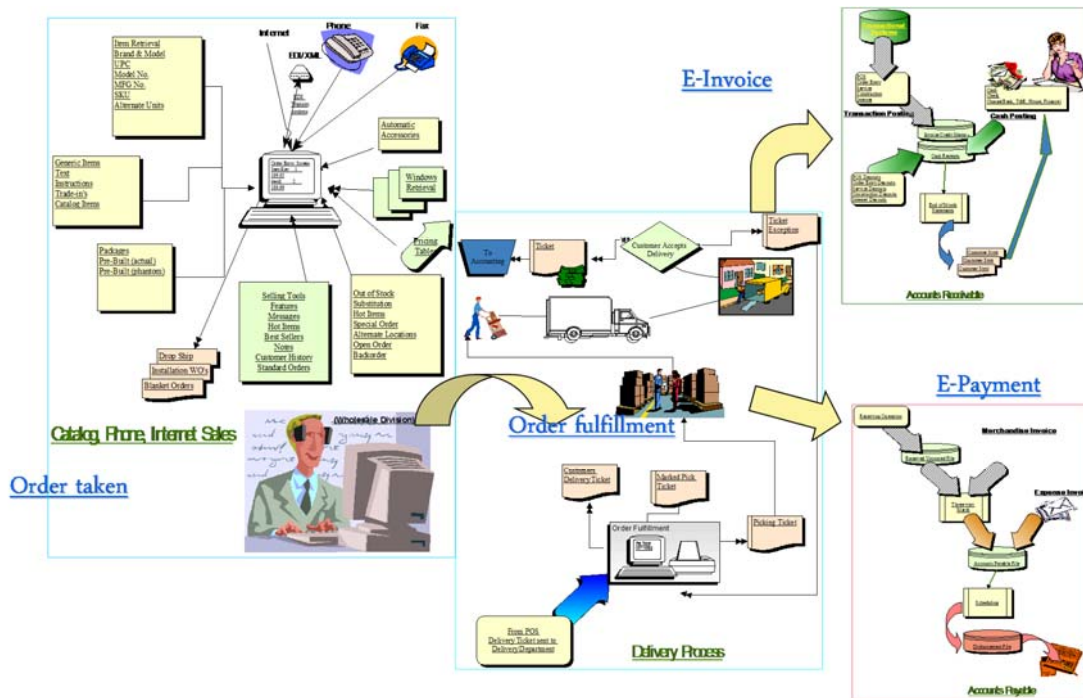
Information Technology for Management, Ed. 5, Efraim Turban et al., Wiley

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04. TPS - Production/Operations

• Managing Production/Operations & Logistics
  • The production and operations management (POM) function in an organization is responsible for the processes that transform inputs into useful outputs.
  • In comparison to the other functional areas, POM is very diversified as are the supporting TPS.
  • It also differs considerably among organizations.

http://virtualworldnmfsfall11.wordpress.com

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04. TPS - Production/Operations

- Managing Production/Operations & Logistics
  - A few of the IT supported POM areas are:
    - In-house logistics and materials management
    - Planning production/operations
    - Computer-integrated manufacturing (CIM)
    - Product lifecycle management (PLM)
    - Automating design work and manufacturing

http://www.nobletek.com

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04. TPS - Production/Operations

- Managing Production/Operations & Logistics
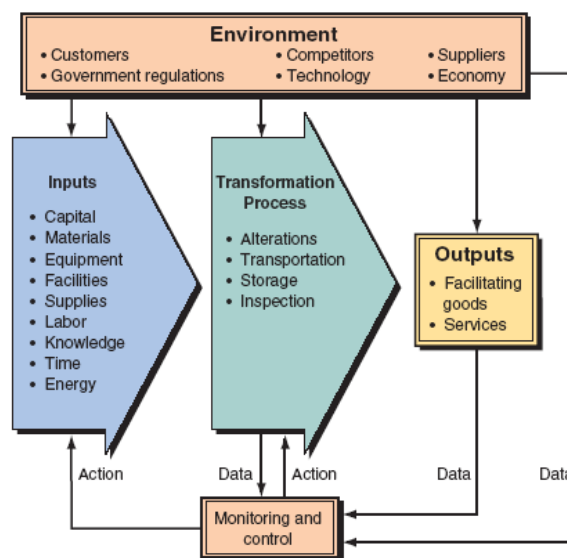
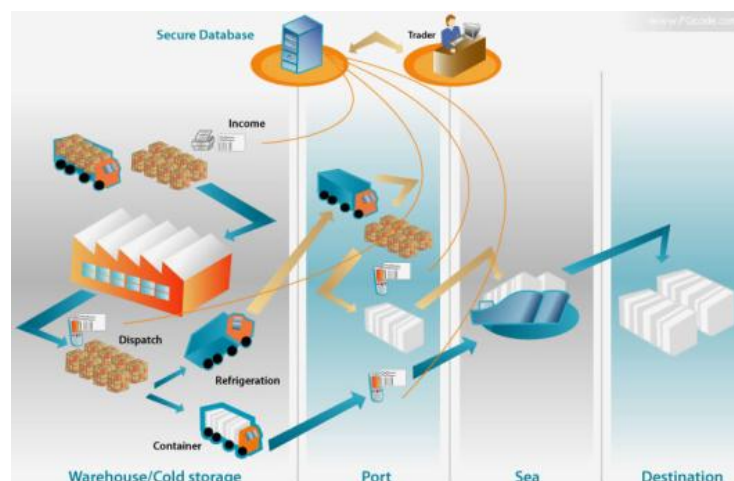# 04. TPS - Production/Operations

- In-House Logistics & Materials Management
    - Logistics management deals with ordering, purchasing, inbound logistics (receiving), and outbound logistics (shipping) activities.
    - These logistical activities cross several primary and secondary activities on the value chain.

http://standard-logistics-icons.downloadpipe.com

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04. TPS - Production/Operations

- In-House Logistics & Materials Management
    - Inventory management determines how much inventory to keep.
    - Overstocking can be expensive; so are understock conditions.
    - Manufacturing quality-control systems can be stand-alone systems or part of an enterprise-wide total quality management (TQM) effort.
    - They provide information about the quality of incoming material as well as the quality of work-in-process and finished goods.

http://www.fqcode.com

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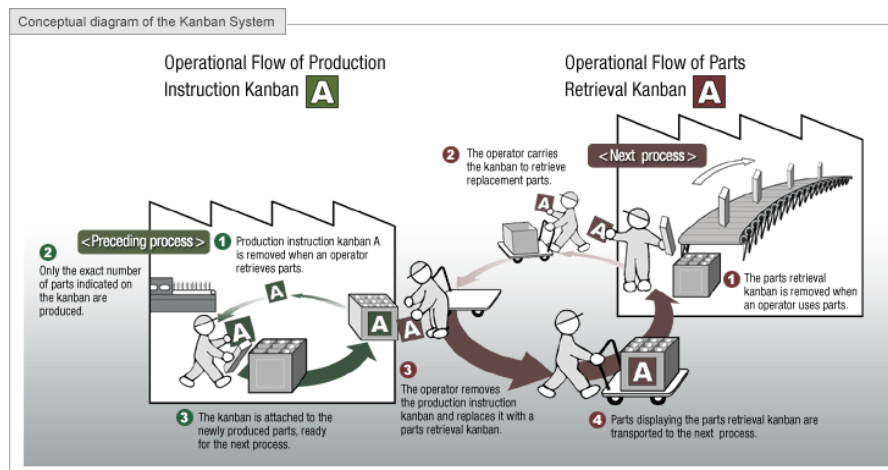
04. TPS - Production/Operations

- Planning Production/Operations
    - Material requirements planning (MRP) is software that facilitates the plan for purchasing or producing parts, subassemblies, or materials in the case of interdependent items.
        - It integrates Master Production Schedules, BOM's and Inventory levels.
    - Manufacturing resource planning (MRP II) adds functionalities to a regular MRP system by determining the costs of parts and the associated cash flow.
        - It also estimates costs of labor, tools, equipment repair, and energy while generating a requirements report.

http://blog.palisade.com

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04. TPS - Production/Operations

- Planning Production/Operations
    - Just-in-time systems (JIT) is an approach that attempts to minimize waste of all kinds (of space, labor, materials, energy, and so on) and to continuously improve processes and systems.
        - The JIT concept is used in mass customization and build-to-order environments.

Conceptual diagram of the Kanban System

Operational Flow of Production Instruction Kanban **A**

Operational Flow of Parts Retrieval Kanban **A**

❷ The operator carries the kanban to retrieve replacement parts.

< Next process >

< Preceding process > ❶ Production instruction kanban A is removed when an operator retrieves parts.

❷ Only the exact number of parts indicated on the kanban are produced.

❶ The parts retrieval kanban is removed when an operator uses parts.

❸ The operator removes the production instruction kanban and replaces it with a parts retrieval kanban.

❸ The kanban is attached to the newly produced parts, ready for the next process.

❹ Parts displaying the parts retrieval kanban are transported to the next process.

http://www.toyota-global.com

04. TPS - Production/Operations

- Planning Production/Operations
  - Project management (PM)
    - A project is usually a one-time effort composed of many interrelated activities, costing a substantial amount of money, and lasting for weeks or years.
    - Software tools such as: program evaluation and review technique (PERT) and the critical path method (CPM) are used to manage milestones, resources, costs, etc.

http://billingsoftware11.springnote.com

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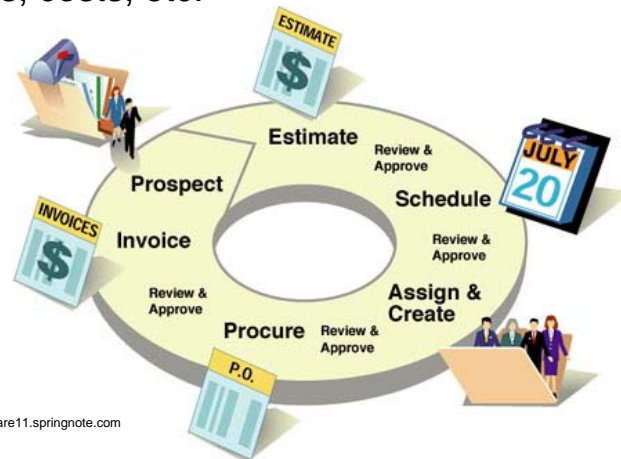
04. TPS - Production/Operations

- Planning Production/Operations
  - Work management systems (WMS) automatically manage the prioritization and distribution of work.
    - These systems deal with resource allocation and reallocation.

http://www.xcellerateit.com

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04. TPS - Production/Operations

- Computer-Integrated Manufacturing (CIM)
  - CIM is a concept that promotes the integration of various computerized factory systems.
  - It has three basic goals:
    - (1) The simplification of all manufacturing technologies and techniques
    - (2) Automation of as many of the manufacturing processes as possible
    - (3) Integration and coordination of all aspects of design, manufacturing, and related functions via computer hardware and software

http://www.amatrol.com

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04. TPS - Production/Operations

- Computer-Integrated Manufacturing (CIM)
  - Typical integrated technologies are:
    - CAD – Computer aided design
    - CAE – Computer aided engineering
    - FMS - Flexible-manufacturing systems
    - MRP – Materials requirements planning
    - GT - Group technology
    - JIT – Just-in-time

http://www.labvolt.com

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04. TPS - Production/Operations

• Computer-Integrated Manufacturing
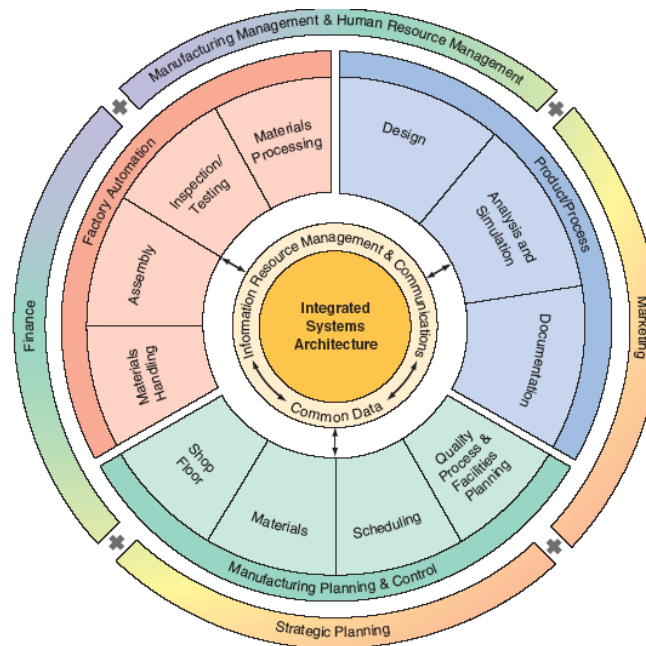
Information Technology for Management, Ed. 5, Efraim Turban et al., Wiley

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04. TPS - Production/Operations

• Product Lifecycle Management (PLM)
  • PLM is a business strategy that enables manufacturers to control and share product-related data as part of a products design and development efforts.
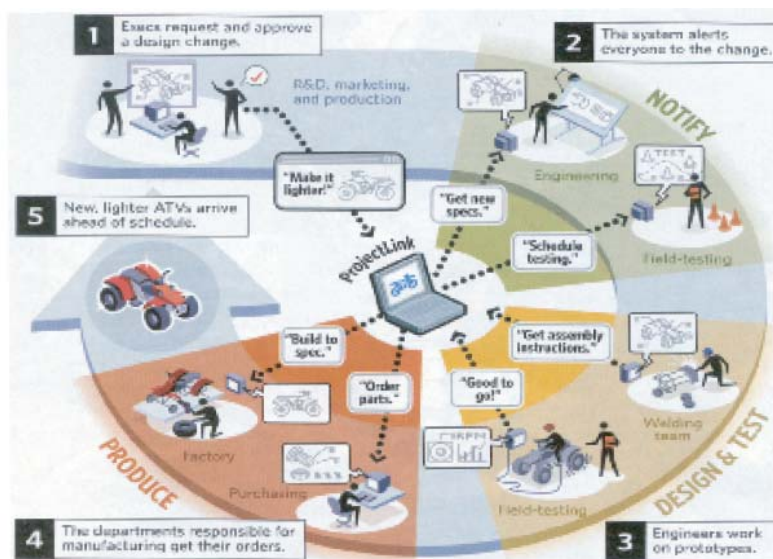 • Web-based supply chains and other technologies are employed to automate this collaborative effort.

http://www.txtgroup.com

04. TPS - Production/Operations

- Product Lifecycle Management (PLM)
    - This electronic-based collaboration can
        - Reduce product cost
        - Travel expenses
        - Reduce costs associated with product-change management
        - Reduce the time it takes to get a product to market
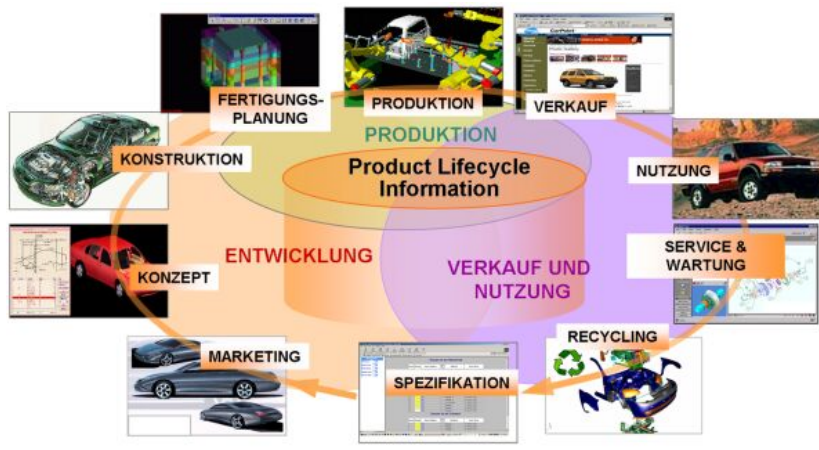
http://www.imi.kit.edu

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04. TPS - Production/Operations

- Product Lifecycle Management (PLM)

Information Technology for Management, Ed. 5, Efraim Turban et al., Wiley

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05. TPS - Marketing/Sales

- Channel Systems
  - Channel systems are the TPS involved in the process of getting a product or service to customers and dealing with their needs.
  - These systems link and transform marketing, sales, procurement, logistics, and delivery activities with other corporate functional areas.

http://www.lpollockpr.com

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05. TPS - Marketing/Sales

- Channel Systems
  - Some of the channel-system activities are:
    - Customer relations
    - Distribution channels and in-store innovations
    - Marketing management
    - Telemarketing
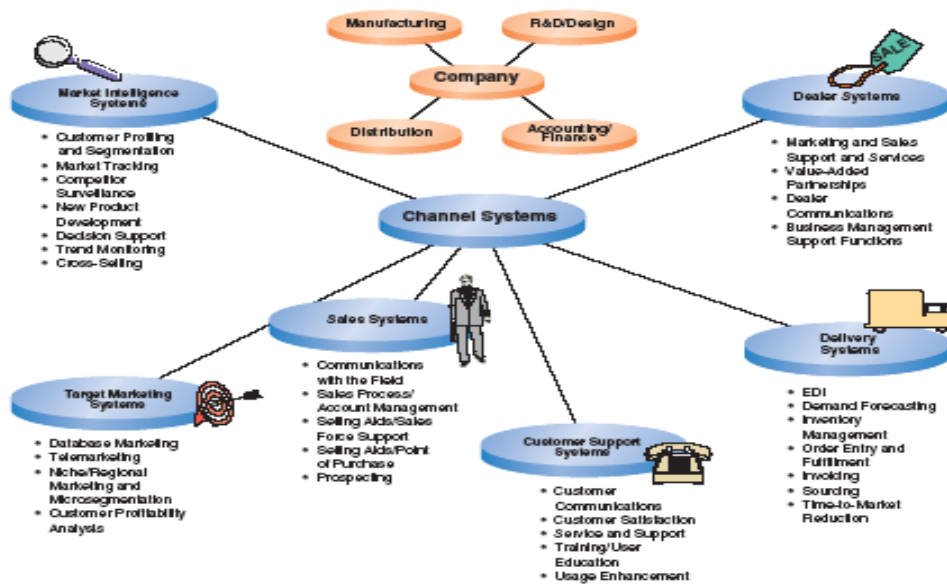
http://www.chartnexus.com

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05. TPS - Marketing/Sales

• Channel Systems

Information Technology for Management, Ed. 5, Efraim Turban et al., Wiley

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05. TPS - Marketing/Sales

• Customer Relations
  • It is essential for companies to know who their customers are and to treat them properly.
  • Innovative products and services, successful promotions, customization, and customer service are a necessity for most organization.

http://www.smallbizbee.com

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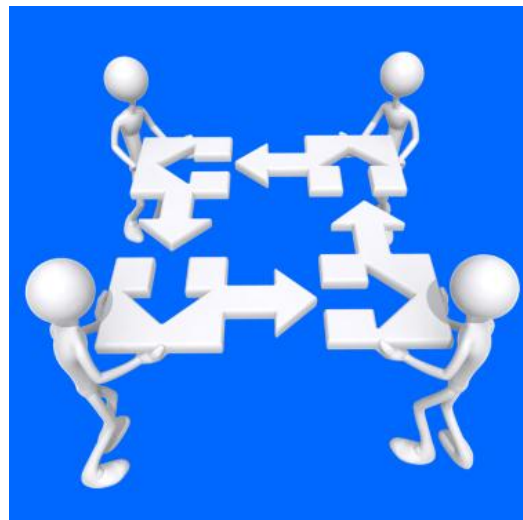
05. TPS - Marketing/Sales

- Customer Relations
    - Customer profiles and preference analysis.
        - Sophisticated information systems are being developed to collect data on existing and potential customers, their demographics (age, gender, income level), and preferences.

http://www.growyourleaders.com

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05. TPS - Marketing/Sales

- Customer Relations
    - Prospective customer lists and marketing databases.
        - All firms need to know and track who their existing and potential customers are.
        - These prospective-customer lists can be analyzed and sorted by classification for direct mailing, e-mailing, or telemarketing.

http://www.dbmarketing.com

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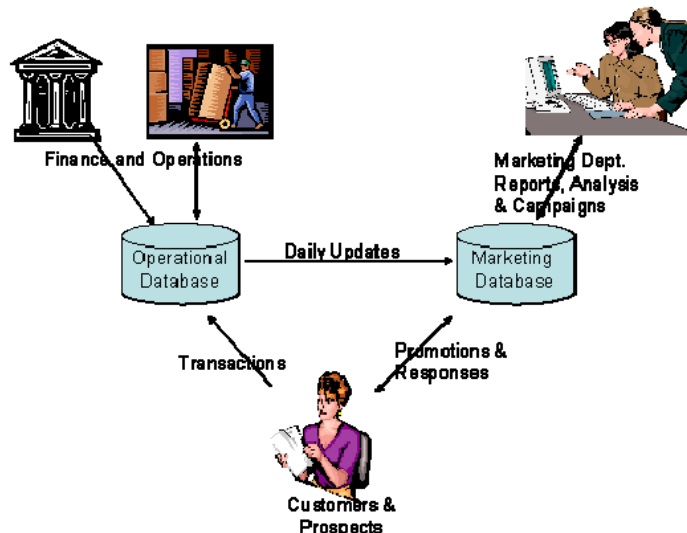
05. TPS - Marketing/Sales

- Customer Relations
    - Mass customization
        - Today's customers prefer customized products.
        - Through mass customization, the practice of maintaining WIP inventory, manufacturers can offer different product configurations at reasonable prices.

http://www.ebz-beratungszentrum.de
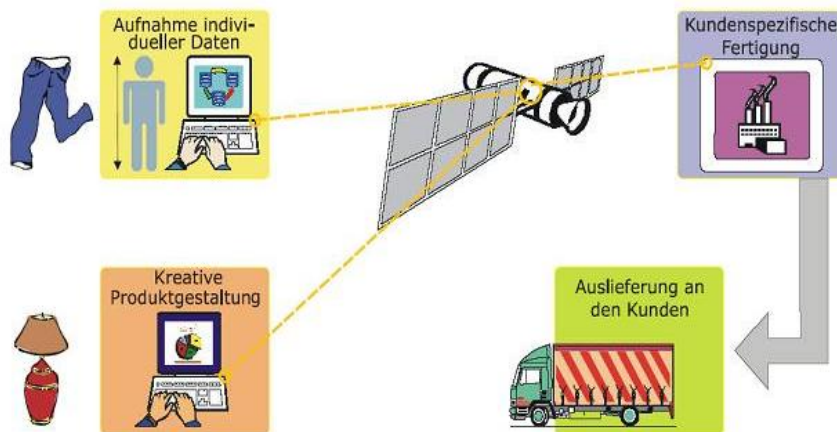
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05. TPS - Marketing/Sales

- Customer Relations
    - Personalization
        - Special product offers are made, based on where the customer spent their time and on what they may have purchased.

http://www.customlabels4u.com

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05. TPS - Marketing/Sales

- Customer Relations
  - Advertising and promotions
    - Special promotions, coupons are presented to the customer via mails, email, wireless and pervasive computing applications.

http://www.gasstationadvertising.com

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05. TPS - Marketing/Sales

- Distribution Channels & In-Store Innovations
  - Organizations can distribute their products and services through a variety of delivery channels.
  - A company may use its own outlets, mfg.
  - Representatives or distributors to name a few.

http://www.xtendconsulting.in

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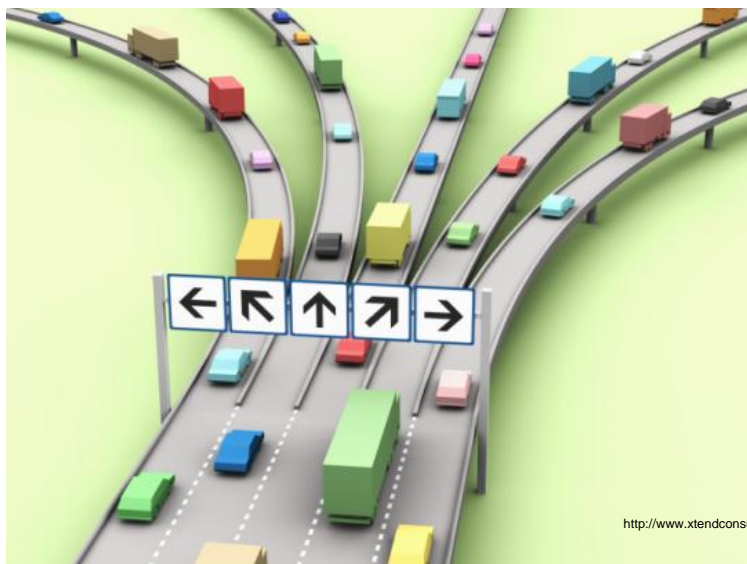
05. TPS - Marketing/Sales

- Distribution Channels & In-Store Innovations
  - IT-supported distribution channels
    - Internet
    - Location based mapping
    - Self-service convenience stores

http://blog.computerservicenow.com

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05. TPS - Marketing/Sales

- Distribution Channels & In-Store Innovations
  - Improving shopping and checkout at retail stores
    - Hand-held wireless devices that scan the bar code UPC
    - Smart card or credit card
    - Information kiosk enable customers to view catalogs in stores
    - Self-checkout machines
    - Check-writers attached to cash registers
    - Computerization of various activities in retail stores
    - Video-based systems count and track shoppers in a physical store

http://www.directindustry.com

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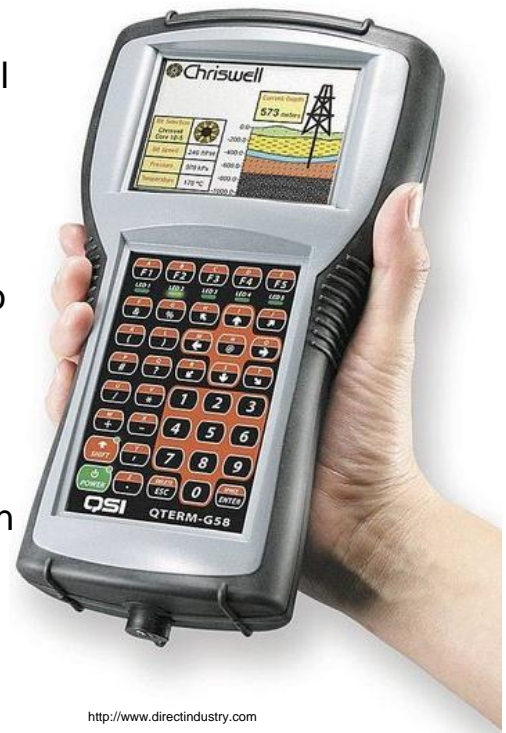
05. TPS - Marketing/Sales

- Marketing Management
  - Many marketing management decision applications are supported by computerized information systems.

http://www.internetmarketingonlinecourse.org

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05. TPS - Marketing/Sales

- Marketing Management
  - Pricing of products or services.
    - Sales volumes are largely determined by the prices of products or services as is profit.
  - Salesperson productivity.
    - Salespeople differ from each other in selling skill. Sales-force automation increases salesperson productivity by providing them with mobile devices, access to information, etc.

http://writers1stop.com

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05. TPS - Marketing/Sales

- Marketing Management
  - Sales analysis and trends
    - Marketing TPS collect sales figures that can be searched for trends and relationships.
  - New products, services, and market planning
    - New products and services can be an expensive risk.
    - "Will it sell?" requires careful analysis, planning, forecasting and market research.

http://www.technorati.com

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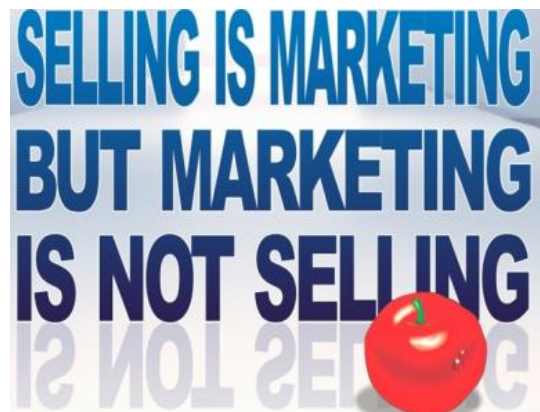
05. TPS - Marketing/Sales

- Marketing Management
  - Profitability analysis profit contribution of certain products and services can be derived from cost-accounting systems.
  - Web-based systems support marketing and sales through data capture.

http://www.livetradingnews.com

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06. TPS - Accounting/Finance

- Accounting and Finance Systems
  - Accounting and finance functional areas manage the inflows and outflow of organizational assets.
  - This involves all functions of an organization including payroll, billing, cash management, etc.

http://www.barkconsults.com

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06. TPS - Accounting/Finance

- Accounting and Finance Systems
  - Financial planning and budgeting
    - Financial and economic forecasting
    - Planning for incoming funds
    - Budgeting
    - Capital budgeting

http://www.targetvanlines.com

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06. TPS - Accounting/Finance

- Accounting and Finance Systems
  - Managing financial transactions
    - Financial and economic forecasting
    - Planning for incoming funds
    - Budgeting
    - Capital budgeting

http://www.thenextweb.com

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06. TPS - Accounting/Finance

- Accounting and Finance Systems
  - E-commerce applications of financial transactions
    - Global stock exchanges and multiple currencies
    - E-bonds
    - Factoring online
    - Electronic re-presentment of checks
    - Electronic bill presentment and payments

http://www.cartoonstock.com

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06. TPS - Accounting/Finance

- Accounting and Finance Systems
  - Virtual close
  - Expense management automation

http://www.2000shareware.com

51

06. TPS - Accounting/Finance

- Accounting and Finance Systems
  - Investment management
    - Financial analysis
    - Access to financial and economic reports

http://www.rentacomputer.com

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06. TPS - Accounting/Finance

- Accounting and Finance Systems
  - Control and auditing
    - Budgetary control and auditing
    - Financial ratio analysis
    - Profitability analysis and cost control
    - Product pricing

http://www.msna.biz

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06. TPS - Accounting/Finance

- Accounting and Finance Systems

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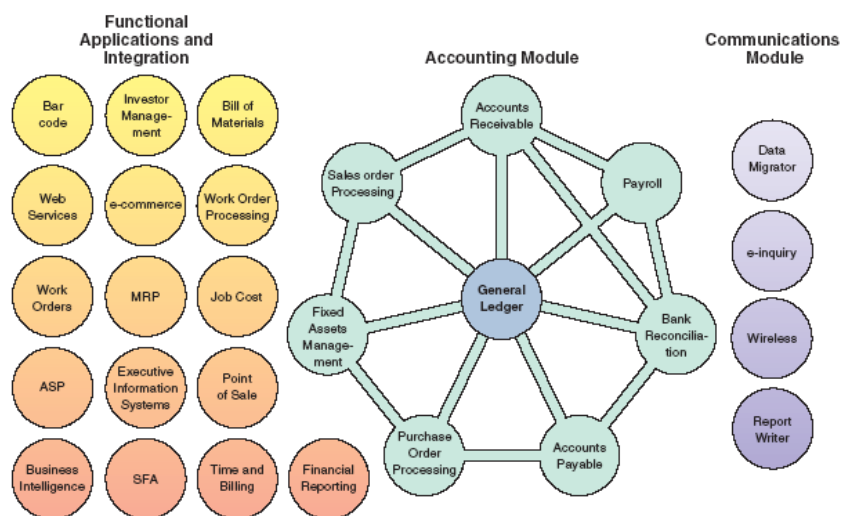
07. TPS - Human Resources

- Human Resources Systems
  - Web-based systems have increased the popularity of human resources information systems which provide applications mainly related to acquiring, hiring, rewarding, developing, training, protecting and retaining human resources.

http://www.phrsphrlounge.com

07. TPS - Human Resources

- Human Resources Management (HRM) Systems
  - Recruitment is finding employees, testing them, and deciding which ones to hire.
  - The Web has enhanced the recruitment process.
    - Position inventory
    - HRM portals and salary surveys
    - Employee selection

http://gre-tutor.blogspot.com

07. TPS - Human Resources

- Human Resources Management (HRM) Systems
  - Human resources maintenance and development
    - Performance evaluation
    - Training and human resources development

http://www.dlperkinscapital.com

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07. TPS - Human Resources

- Human Resources Management (HRM) Systems
  - Human resources planning and management
    - Personnel planning
    - Labor management negotiations
    - Payroll and employees' records
    - Benefits administration
    - Employee relationship management

http://www.graphicleftovers.com

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07. TPS - Human Resources

- Human Resources Management (HRM) Systems
  - Responsible for the workforce

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07. TPS - Human Resources

- Human Resources

08. TPS – Enterprise Wide IS

- TPS – Enterprise Wide Information Systems
  - Integration of cross-functional information systems tears down barriers between and among departments & corporate headquarters and reduces duplication of effort.

http://www.thegeminigeek.com

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08. TPS – Enterprise Wide IS

- TPS – Enterprise Wide Information Systems

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