



## Chapter 9



# Achieving Operational Excellence and Customer Intimacy: Enterprise Applications



# Management Information Systems

## Chapter 9 Achieving Operational Excellence and Customer Intimacy: Enterprise Applications

### LEARNING OBJECTIVES

- **Demonstrate how enterprise systems achieve operational excellence by integrating and coordinating diverse functions and business processes in the firm.**
- **Demonstrate how supply chain management systems coordinate planning, production, and logistics with suppliers.**
- **Demonstrate how customer relationship management systems achieve customer intimacy by integrating all customer information and making it available throughout the firm.**



# Management Information Systems

## Chapter 9 Achieving Operational Excellence and Customer Intimacy: Enterprise Applications

### LEARNING OBJECTIVES (cont'd)

- **Assess the challenges posed by enterprise applications.**
- **Describe how enterprise applications can be used in platforms for new cross-functional services.**





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### Whirlpool Fixes Its Supply Chain

- **Problem:** Uncontrollable supply chain, outdated systems.
- **Solutions:** Eliminate manual procedures and implement supply chain software suite to allocate inventory more accurately and forecast demand.
- **i2 Technologies forecasting software and SAP ERP software** reduce inventory and increase sales.
- Demonstrates IT's role in coordinating supply chains.
- Illustrates digital technology as part of a solution that can benefit both a firm and its customers.



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### Enterprise Systems

- **Enterprise systems**

- Based on suite of integrated software modules and common central database
- Integrate information from across company's divisions, departments, key business processes in the four functional areas
- Updated information made available to all business processes
- Generate enterprise-wide data for management analyses

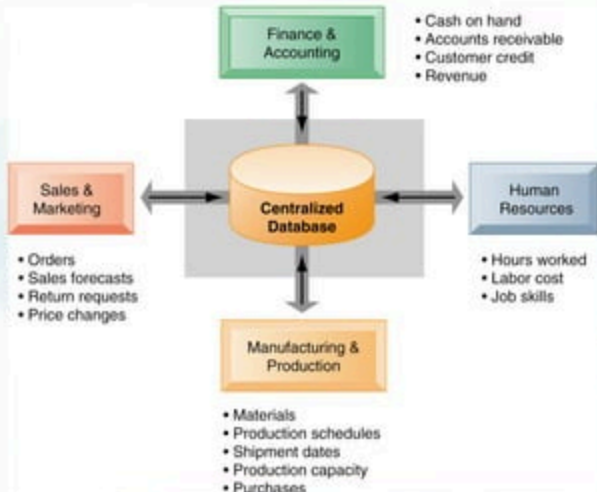


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## Chapter 9 Achieving Operational Excellence and Customer Intimacy: Enterprise Applications

### Enterprise Systems

## How Enterprise Systems Work



Enterprise systems feature a set of integrated software modules and a central database that enables data to be shared by many different business processes and functional areas throughout the enterprise.

Figure 9-1



**Enterprise Systems**

- **Enterprise software**

- Built around thousands of predefined business processes that reflect best in industry practices
- Companies map business processes to enterprise system's processes for desired functions
- Configuration tables allow tailoring of system
- System software can be rewritten in part, but may degrade performance and process integration



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### Enterprise Systems

- **Business processes supported by enterprise systems**
  - **Financial and accounting:** General ledger, accounts payable, cost-center accounting, financial reporting, etc.
  - **Human resources:** Personnel administration, benefits accounting, time management, compensation, etc.
  - **Manufacturing and production:** Procurement, inventory management, purchasing, shipping, quality control, etc.
  - **Sales and marketing:** Order processing, quotations, product configuration, billing, credit checking, sales planning, etc.





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### Enterprise Systems

- **Business value of enterprise systems**
  - Increasing operational efficiency
  - Helping respond to customer requests rapidly
  - Producing, procuring, shipping right amounts
  - Enforcing standard practices and data throughout company
  - Providing firm-wide information to help managers make better decisions
  - Allowing senior management to easily find out at any moment how a particular organizational unit is performing or to determine which products are most or least profitable



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### Supply Chain Management Systems

- **Supply chain:**
  - Network of organizations and business processes for:
    - Procuring raw materials
    - Transforming them into intermediate and finished products
    - Distributing finished products to customers
  - Includes secondary and tertiary suppliers
  - Upstream portion: Suppliers
  - Downstream portion: Distributors

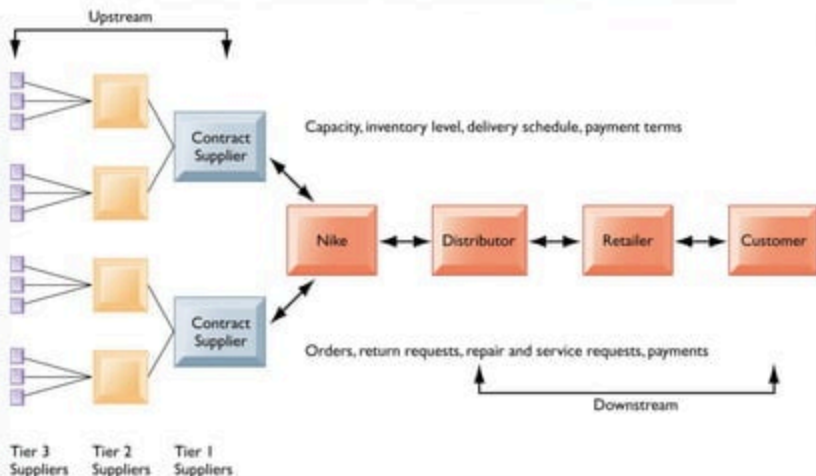


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### Supply Chain Management Systems

## Nike's Supply Chain



This figure illustrates the major entities in Nike's supply chain and the flow of information upstream and downstream to coordinate the activities involved in buying, making, and moving a product. Shown here is a simplified supply chain, with the upstream portion focusing only on the suppliers for sneakers and sneaker soles.

Figure 9-2



**Supply Chain Management Systems**

- **Information and supply chain management**
  - **Supply chain inefficiencies**
    - E.g. parts shortages, excessive inventory
    - Waste up to 25% of operating costs
    - Caused by inaccurate or untimely information
      - Uncertain product demand
      - Late shipments from suppliers
  - **Safety stock:** Kept as buffer for lack of flexibility in supply chain adds to costs



**Supply Chain Management Systems**

- **Information and supply chain management**
  - **Bullwhip effect**
    - Demand for product gets distorted as it is estimated by successive members in supply chain, causing excess stockpiling of inventory, warehousing, shipping costs
  - **Just-in-time strategy**
    - Perfect information about supply and demand so that components arrive at moment they are needed and finished goods are shipped as they leave assembly line

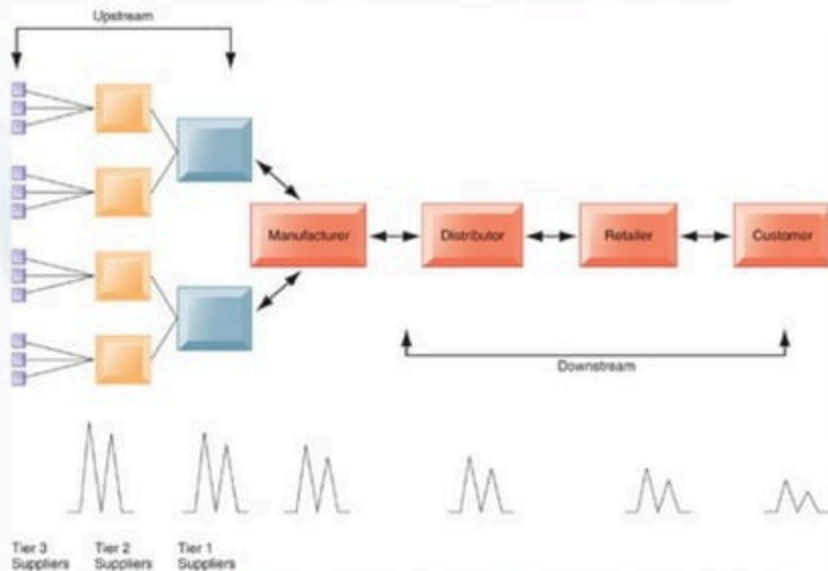


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### Supply Chain Management Systems

## The Bullwhip Effect



**Figure 9-3**

Inaccurate information can cause minor fluctuations in demand for a product to be amplified as one moves further back in the supply chain. Minor fluctuations in retail sales for a product can create excess inventory for distributors, manufacturers, and suppliers.



**Supply Chain Management Systems**

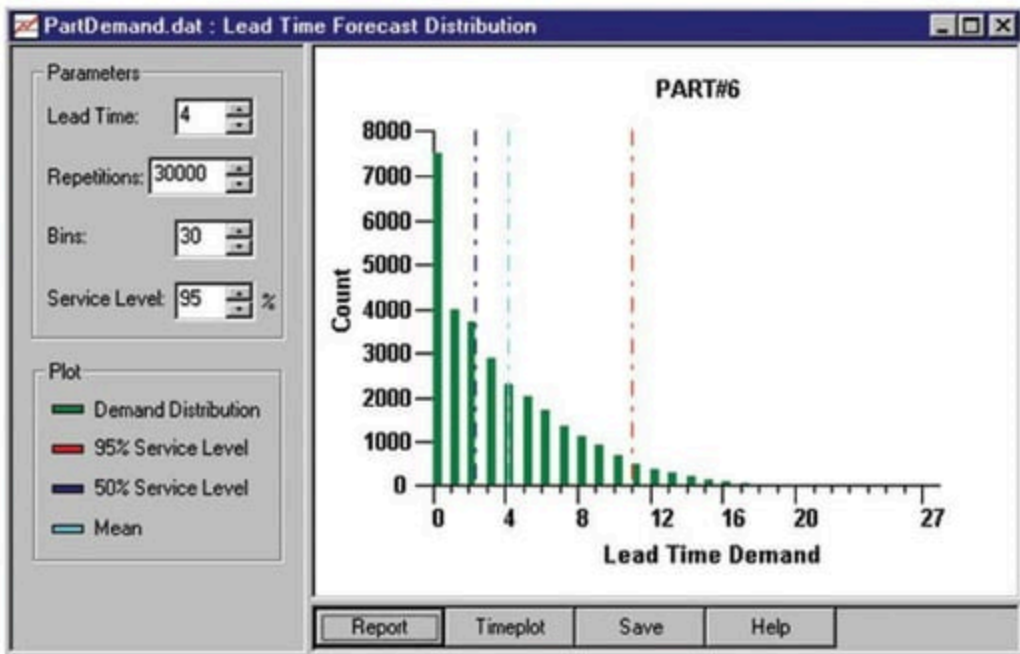
- **Supply chain management applications**
  - **Two main categories**
    - Supply chain planning systems
    - Supply chain execution systems
  - **Supply chain planning systems**
    - Demand planning
    - Order planning
    - Advanced scheduling and manufacturing planning
    - Distribution planning
    - Transportation planning



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### Supply Chain Management Systems



An important use of SmartForecasts demand planning software from Smart Software is to forecast future demand for products where demand is intermittent or irregular. Shown here is a forecast graph for the distribution of total cumulative demand for a spare part over a four-month lead time.





**Supply Chain Management Systems**

- **Supply chain management applications**
  - **Supply chain execution systems**

Manage flow of products through distribution centers and warehouses to ensure products delivered to right locations in most efficient manner

    - Order commitments
    - Final production
    - Replenishment
    - Distribution management
    - Reverse distribution



**Supply Chain Management Systems**

- **Supply chain management and the Internet**
  - **Before Internet, difficult to share supply chain information with external partners or internally because of incompatible technology platforms**
  - **Internet enables:**
    - Intranets and extranets for sharing information
    - Web-based tools and interfaces to suppliers', partners' systems
    - Coordination of overseas suppliers, communications, transport, compliance, etc.



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### Supply Chain Management Systems

## Intranets and Extranets for Supply Chain Management



**Figure 9-4**

Intranets integrate information from isolated business processes within the firm to help manage its internal supply chain. Access to these private intranets can also be extended to authorized suppliers, distributors, logistics services, and, sometimes, to retail customers to improve coordination of external supply chain processes.



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### Supply Chain Management Systems

- **Push-based model (Build-to-stock)**
  - Production master schedules based on forecasts or best guesses of product demand; products “pushed” to customers
- **Pull-based model (Demand-driven, build-to-order)**
  - With IT, manufacturers can use only order demand information to drive schedules and procurement of components or raw materials
- **Sequential supply chains**
  - Information, materials move sequentially
- **Concurrent supply chains**
  - With IT, information moves in many directions simultaneously

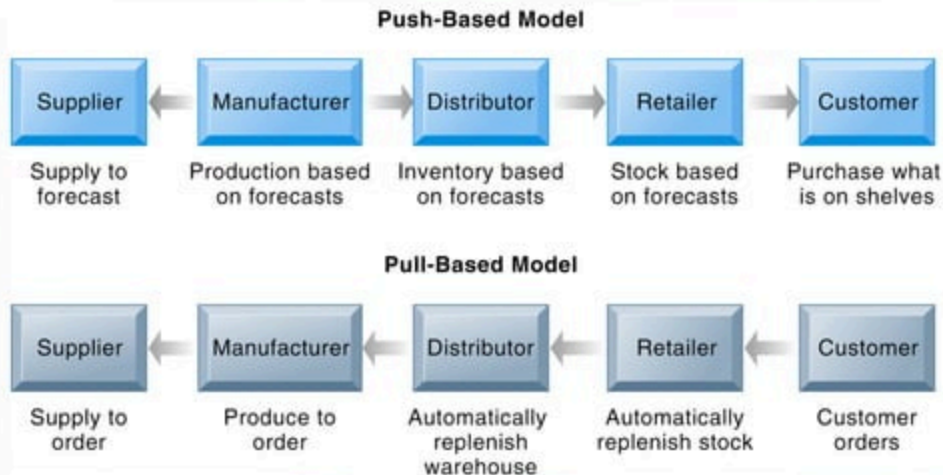


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### Supply Chain Management Systems

## Push- Versus Pull-Based Supply Chain Models



The difference between push- and pull-based models is summarized by the slogan "Make what we sell, not sell what we make."

Figure 9-5

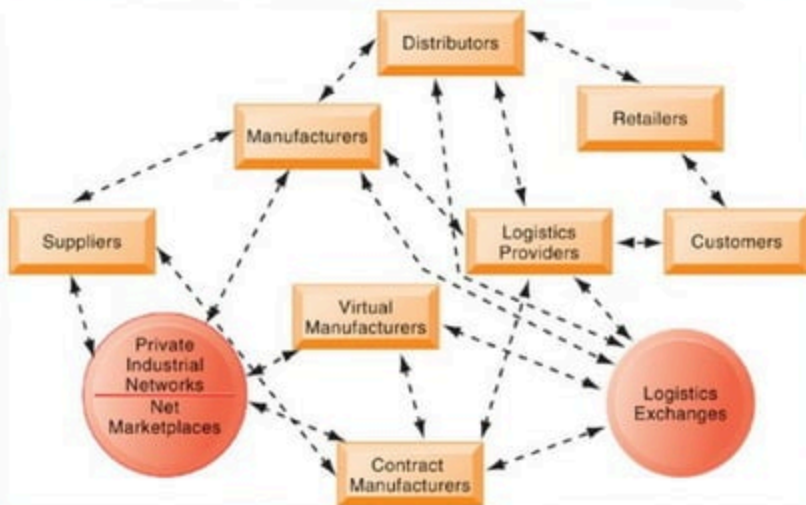


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### Supply Chain Management Systems

## The Future Internet-Driven Supply Chain



The future Internet-driven supply chain operates like a digital logistics nervous system. It provides multidirectional communication among firms, networks of firms, and e-marketplaces so that entire networks of supply chain partners can immediately adjust inventories, orders, and capacities.

Figure 9-6



**Supply Chain Management Systems**

- **Business value of supply chain management systems**
  - Matching supply to demand and reducing inventory levels
  - Improving delivery service and speeding product time to market
  - Using assets more effectively
  - Increasing sales by assuring availability of products
  - Increased profitability
    - Supply chain costs can approach 75% of total operating budgets



**Customer Relationship Management Systems**

- **Customer relationship management (CRM) systems**
  - Capture, consolidate, analyze customer data and distribute results to various systems and customer **touch points** (contact points) across enterprise
  - Provide single enterprise view of customers
  - Provide customers single view of enterprise at touch points
  - Provide analytical tools for determining value, loyalty, profitability of customers
    - Assist in acquiring new customers, providing better service and support to customers, customize offerings to customer preferences, provide ongoing value to retain profitable customers





# Management Information Systems

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### Customer Relationship Management Systems

## Customer Relationship Management (CRM)



CRM systems examine customers from a multifaceted perspective. These systems use a set of integrated applications to address all aspects of the customer relationship, including customer service, sales, and marketing.

Figure 9-7



## **IHOP Cooks Customer Data to Order**

- **Read the Interactive Session: Technology, and then discuss the following questions:**
  - **How does knowledge of customers impact IHOP's business performance?**
  - **Why did IHOP have trouble getting to know its customers?**
  - **How has the company chosen to improve its knowledge of customers? Analyze the management, organization, and technology dimensions of the solution.**
  - **Did IHOP choose the best solution? Explain your answer.**



**Customer Relationship Management Systems**

- **CRM software**
  - Ranges from niche tools to large-scale enterprise applications
  - More comprehensive CRM packages have:
    - **Partner relationship management (PRM) modules**
      - Enhances collaboration between company and selling partners
    - **Employee relationship management (ERM) modules**
      - Deals with employee issues closely related to CRM, e.g. setting objectives, employee performance management
  - Typically include tools for sales, customer service, and marketing



**Customer Relationship Management Systems**

- **Sales force automation (SFA) modules**
  - Enable focusing efforts on most profitable customers
  - Enables sharing customer and prospect information
  - Helps reduce cost per sale and cost of acquiring, retaining customers
- **Customer service modules**
  - Assigning and managing customer service requests
  - E.g. managing advice phone lines, Web site support



**Customer Relationship Management Systems**

- **Marketing modules**
  - Capturing prospect and customer data,
  - Providing product and service information
  - Qualifying leads for targeted marketing
  - Scheduling and tracking direct-marketing mailings or e-mail
- **Analyzing marketing and customer data:**
  - Identifying profitable and unprofitable customers
  - Designing products and services to satisfy specific customer needs and interests
  - Identifying opportunities for **cross-selling**



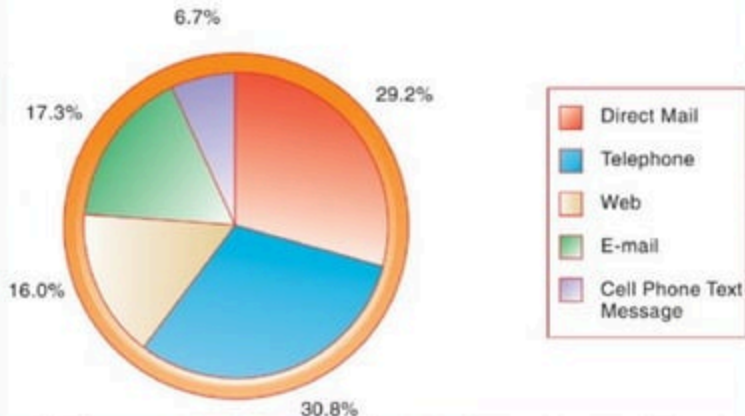
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### Customer Relationship Management Systems

## How CRM Systems Support Marketing

Responses by Channel for January 2006  
Promotional Campaign



Customer relationship management software provides a single point for users to manage and evaluate marketing campaigns across multiple channels, including e-mail, direct mail, telephone, the Web, and wireless messages.

Figure 9-8

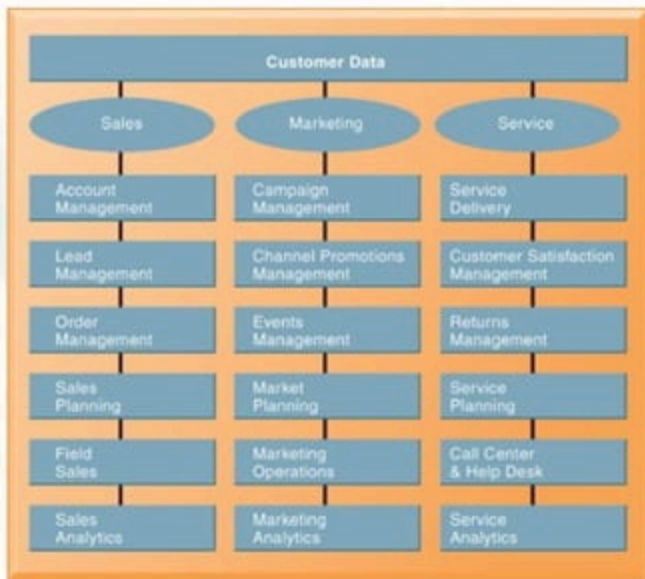


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### Customer Relationship Management Systems

## CRM Software Capabilities



**Figure 9-9**

The major CRM software products support business processes in sales, service, and marketing, integrating customer information from many different sources. Included are support for both the operational and analytical aspects of CRM.



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### Customer Relationship Management Systems

## Customer Loyalty Management Process Map



This process map shows how a best practice for promoting customer loyalty through customer service would be modeled by customer relationship management software. The CRM software helps firms identify high-value customers for preferential treatment.

Figure 9-10





**Customer Relationship Management Systems**

- **Two main categories of CRM**
  - **Operational CRM**
    - Customer-facing applications, e.g. tools for sales force automation, call center and customer service support, marketing automation
  - **Analytical CRM**
    - Applications that analyze (OLAP, data mining, etc.) customer data
    - Based on data warehouses consolidating data from operational CRM systems and customer touch points
    - One important output: **Customer lifetime value (CLTV)**
      - Value based on revenue produced by a customer, expenses incurred in acquiring and servicing customer, and expected life of relationship between customer and company

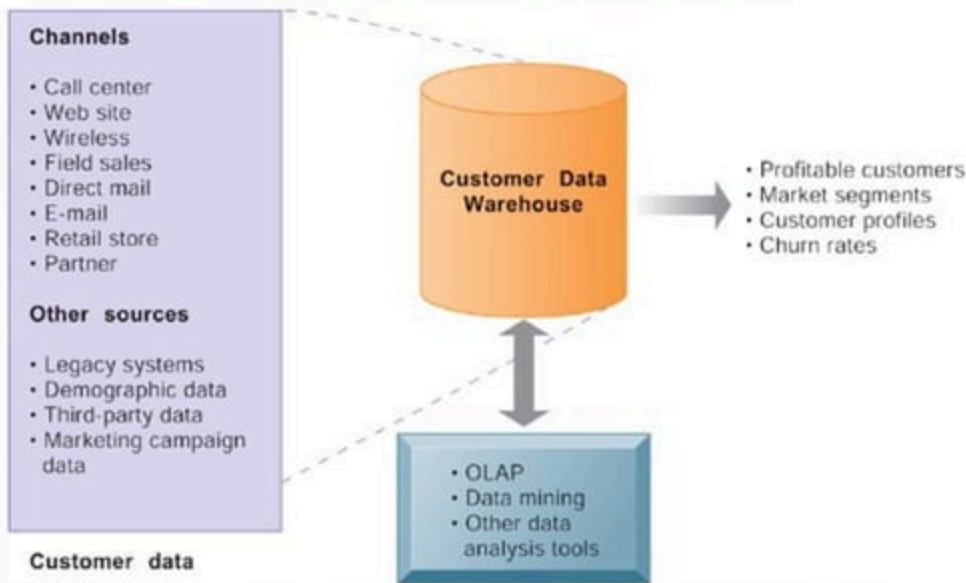


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### Customer Relationship Management Systems

## Analytical CRM Data Warehouse



**Figure 9-11**

Analytical CRM uses a customer data warehouse and tools to analyze customer data collected from the firm's customer touch points and from other sources.



**Customer Relationship Management Systems**

- **Business value of CRM systems**
  - Increased customer satisfaction
  - Reduced direct marketing costs
  - More effective marketing
  - Lower costs for customer acquisition and retention
  - Increased sales revenue
    - By identifying profitable customers and segments for focused marketing and cross-selling
  - Reduced **churn rate** (number of customers who stop using or purchasing products or services)



- **Enterprise application challenges**
  - Expensive to purchase and implement
    - Total implementation cost may be four to five times of cost of software
  - Deep-seated technological change
  - Fundamental changes to organization, business processes
    - New functions and responsibilities for employees
    - SCM systems require business process change for multiple organizations
  - Introduce “switching costs”, dependency on enterprise software vendor
  - Require understanding firm's data and cleansing data



## Invacare Struggles with Its Enterprise System Implementation

- **Read the Interactive Session: Organizations, and then discuss the following questions:**
  - How did problems implementing the Oracle enterprise software affect Invacare's business performance?
  - What management, organization, and technology factors affected Invacare's ERP implementation?
  - If you were Invacare's management, what steps would you have taken to prevent these problems?



- **Extending enterprise software: Techniques to extract more value from enterprise systems**
  - **Service platforms:**
    - Integrates applications from multiple business functions or partners
    - Provides greater degree of cross-functional integration than traditional enterprise applications
    - E.g. **order-to-cash process**: Requires data from enterprise applications and financial systems to be further integrated into enterprise-wide composite process
    - Enterprise application vendors provide middleware and tools that use XML and Web services for integrating enterprise applications with older legacy applications and systems from other vendors

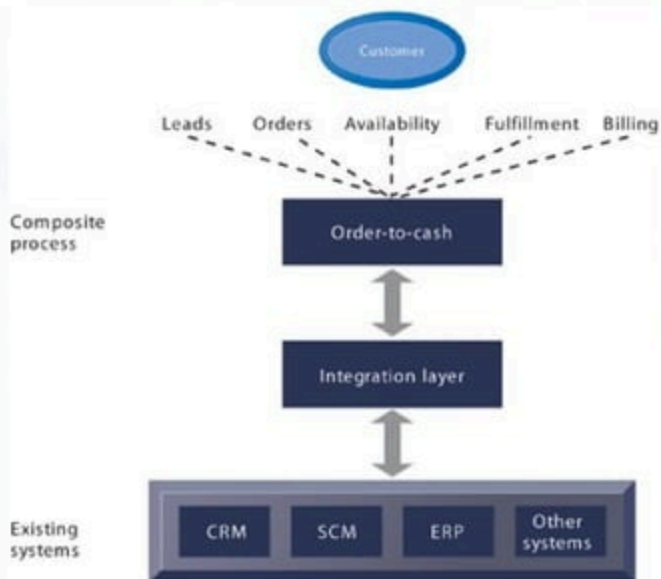


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### Enterprise Applications: New Opportunities and Challenges

## Order-to-Cash Service



**Figure 9-12**

Order-to-cash is a composite process that integrates data from individual enterprise applications and legacy financial applications. The process must be modeled and translated into a software system using application integration tools.