E-Business:
A Framework

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Overview

- Setting the Context
  - The economics of business
  - Goals of E-Business
  - The Key Functions
- Phases of E-Business
  - Targets of opportunity
  - Integration phase
    - Manufacturing efficiencies
    - Enterprise Resource Management
  - Enterprise phase
    - Supply Chain Management
    - Customer Relations Management

Prelude

"Extraordinary improvements in business-to-business communication have held unit costs in check, in part by greatly speeding up the flow of information. New technologies for supply-chain management and flexible manufacturing imply that businesses can perceive imbalances in inventories at a very early stage--virtually in real time--and can cut production promptly in response to the developing signs of unintended inventory building."

Testimony of Chairman Alan Greenspan
Federal Reserve Board's semiannual monetary policy report to the Congress
Before the Committee on Financial Services, U.S. House of Representatives
February 28, 2001

Transaction Costs

- Coase, Ronald H., (1937) "The Nature of the Firm," Economica, 4(n.s.), 1937, 386-405.
- Transactions can take place
  - Mediated by the open market, but there is a transaction cost.
  - Within a firm, but there is a coordination cost.
  - Through another organization, but there is a coordination and transaction cost.

Scope of an institution

- If the market cost of transactions is high, firms grow in scope, subsuming transaction partners to economize on the cost of coordinating economic activity – General Motors buys a tire maker.
- If coordination costs are high within an institution, transactions will be conducted through the marketplace and firms shrink in scope.
- Specialized institutions may provide an intermediate solution with a combination of low coordination and transaction costs.

Driving forces

- Businesses are being driven to become e-businesses by three things
  - Once one business in a sector adopts e-business approaches the velocity at which business operates increases requiring all competitors to conform
  - Organizational boundaries are beginning to blur as low cost and standardized transactions become common
  - Internal (employee) and external (customer) expectations for technology based solutions are rising

What Makes for an E-Business

- Most broadly, an e-business is any business that makes use of digital technology
  - E-businesses use advanced computer systems to operate and manage their business rapidly and flexibly
  - E-businesses use communications technology to link to suppliers and customers. These technologies range from fax and email to EDI, WAP, and XML
  - E-businesses look to develop, based on the above:
    - New channels
    - New products
    - New modes of operating

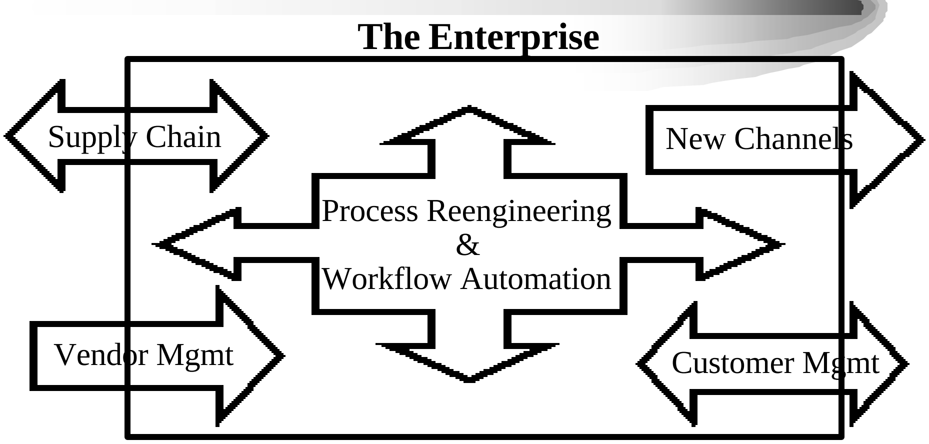
The E-Business Imperative

- The goals of business remain the same
  - Provide users with a superior product at a reasonable cost
- To achieve this goals, a business wants to:
  - Reduce costs to produce the product
  - Reduce administrative overhead costs
  - Find and sell customers on the product
  - Develop new products and services

The Customer in E-business

- The internet and information technology has given the customer new leverage:
  - Given the opportunity to move from vendor to vendor with just a click, businesses must be ever more concerned about providing what the customer needs
  - Given the sophistication of enterprise wide software integration, it is now possible for businesses to provide what customers wants rather than pushing what the organization wants to sell

Key E-Business Interfaces



Important E-Business Functions

Suppliers	Employees	Customers
•Capacity Planning •Procurement •Logistics •Demand Planning	•Production scheduling •Packaging •Servicing •Accounting •Human Resources	•Sales •Order Entry •Distribution scheduling •Customer Support

Approaches to E-Business

- Taking Advantage of E-Businesses
  - Better supply chain and vendor management
- Retooling Existing Businesses
  - Better enterprise resource management
  - Developing new channels
  - New customer services
- New Businesses
  - New products/services using new channels
  - Existing products/services using new channels

Phases of E-Business

- Businesses that apply technology to business tend to do so in three phases
  - Phase 1: Targets of opportunity
    - Cost reductions (purchasing and expenses)
    - Information sharing (services and policies)
  - Phase 2: Integration
    - Enterprise Resource Planning
    - Customer Relations Management
  - Phase 3: The Enterprise
    - Supply Chain Management
    - Selling Chain Management

Targets of Opportunity: Non-production Procurement

- Non-production procurement accounts for 5-10% of a businesses expenses
  - In the US, this is a \$500 billion market (in contrast, acquisition of production materials for just Ford, GM, and DaimlerChrysler is about \$500 billion/year)
  - Reducing these costs by \$1 is equivalent to increasing sales by \$13 – assuming a profit margin of 7%.
  - Most non-production procurement involves low volume purchases with high overhead costs -- 3% of accounts payable but 70% of transactions.

Approaches

- Drive acquisition decisions to the lowest possible level and manage by exception
  - Allow direct ordering and have the system flag unusual events or patterns for further processing
- Provide electronic catalogs that represent institutional best purchase decisions in real time
  - Ultimately these catalogs can be personalized for employees to further reduce search times
- Integrate ordering, fulfillment, and payment systems.

The Ultimate System

- Self-service Requisitioning
  - User has an authenticated login to the system
  - User views all available items for purchase where choices reflect real time centralized negotiations
  - User can fill out and dispatch a requisition which is routed based on roles and content
- Order Management
  - Requisition is converted to one or more purchase orders, impacting accounting systems, and routed to suppliers
  - E-mail notification of order and tracking information is returned to the requisitioner
  - Upon receipt of goods, payment processing and additional accounting system modifications are made

Behind the Scenes

- For the organization, the distributed purchasing system provides a series of new opportunities
  - Negotiation of high volume purchase agreements for non-production items
    - Supplier reduction
    - Contract leverage
  - Tracking of purchases/spending analysis
    - Reduced leakage and increased profiling
    - Vendor compliance and service
  - Potential outsourcing of process

The Process

- Establish Goals
  - Cost cutting in technical procurement steps
  - Time savings in decision making and selection
  - Control of process, both overview and leakage
- Conduct an audit of the current process
  - Strategic contract negotiation
  - Transaction processing
  - Spot purchases
- Create a business case
  - Negotiated price reductions and processing cost reductions
  - Reduced inventory and warehousing

The Process (continued)

- Conduct a supplier analysis
  - Strategic collaborations – scarce products
  - Strategic cooperation – important products
  - Short term agreements – products for which price reductions can be negotiated
  - Commodities – products best purchased on the open market
- Select procurement software
  - Feature match to my plan
  - Integration with other applications
  - Extensibility to other vendors and services
- Train, educate and involve all parties

Target of Opportunity: Business Expenses & HR Services

- Business travel and related expenses
  - Online ticketing
  - Online expense reporting
  - Linking travel planning and travel reporting
  - Rule based processing of legitimate expenses
  - Aggregation and analysis of costs
- Benefit options
  - Employee benefits plans can be opted for online
  - Information about options can be disseminated as well
  - New option alerts can be disseminated by email

Target of Opportunity: Information

- Many initial efforts focus on the use of the web as an alternative information distribution channel
  - Information to customers
    - Product offerings and product availability
    - Contact information
    - Updates, services, help
  - Information to employees
    - Product offerings and availability
    - Customer information
    - Policies, benefits, and other organizational information

Integration Phase

- The integration phase involves preparation of the organization for inter-organizational improvements
- The primary focus is on developing internal systems to reduce costs and improve response time.
- There are two basic foci for improvement
  - Procurement and production or logistics systems
  - Sales and marketing (customer) systems
- Collectively, these systems combined with accounting and human resources compose an Enterprise Resource Planning (ERP) system

The Core Business

- In the 1960s, organizations began to develop inventory control systems
- In the 1970s, material requirement planning (MRP) and resource distribution planning (RDP) systems were developed
- In the 1980s, MRP2 systems began to integrate the controls on both acquisition of inventory to produce products and distribution of inventory to consumers.
- The goal of all of these efforts was to reduce inventory and gain greater control of operations

Production Procurement

- On the acquisition side, there are several modules that need to be integrated
  - Demand planning and order processing
    - What orders exist
    - Can an order by taken – and at what cost/profit
  - Manufacturing scheduling
    - What capacity exists
  - Inventory control
    - Are the resources needed available
  - Transportation planning
  - Distribution planning

Sales, Marketing, and CRM

- Businesses have multiple channels through which they sell
  - Sales Force
  - Distributors
  - OEMS
  - Self-service/direct sales
- Support of the Sales Force may be defined as Selling Chain Management
- Development of the other channels may be defined as Customer Relations Management (CRM)

Selling Chain Management

- Selling Chain Management involves
  - Sales support
  - Marketing support
- It includes:
  - Management of sales leads
  - Access to timely and accurate information about products and inventory
  - Assistance inn real time pricing, order entry, and proposal development
  - Commission management

Goals of Selling Chain Management

- Increase sales force effectiveness
  - Manage prospects, leads, and customer information
  - Coordinate organizational support for selling
    - Sales and production
    - Sales and marketing/development
- Manage the administration of sales and marketing
  - Targeted marketing
  - Automated expense and commission management
- Add value for the customer
  - Make the ordering process easier for the customer
  - Make it easy to configure/customize products
  - Provide order tracking and delivery information

Customer Relations Management

- As sales force based endeavors move to self service, Customer Relations Management (CRM) becomes an important new concept
  - Provide catalog and inventory information
  - Provide individual customers with options for configuration, ordering, and order status
  - Provide major customers with access to service information
  - Provide online support and assistance to customers

Enterprise Resource Planning

- ERP is the backbone of e-business
  - The goals of an ERP system will vary across corporate sectors
- An ERP system consists of six basic modules
  - Production planning
  - Integrated Logistics
  - Sales distribution
  - Human Resources
  - Accounting and Financials
- ERP is the base for Value Chain Management

ERP Software

- Once an organization has committed to the development of an ERP system, there are three basic choices
  - Build a system
  - Buy a system
  - Outsource the process
- Most organizations decide to buy COTS ERP systems
  - Costs are lower
  - The knowledge base incorporated constitutes best practices

ERP Installation

- ERP requires a top management commitment
- Generally, the best process involves five phases:
  - Goal setting, commitment, and orientation
  - Requirements analysis and blueprint development
  - Pilot testing for a given business process
  - Consolidation and migration
  - Assessment and modification
- Because the system will require new employee behavior, buy in and training is required at all levels.

Enterprise Phase

- The enterprise phase focuses on Value Chain Management:
- Value Chain Management (VCM) consists of
  - Supply Chain Management
    - Developing strategic linkages with major suppliers
    - Working to optimize access to needs on behalf of suppliers
  - Selling (Demand) Chain Management
    - Developing of customer driven planning
    - Building design to order manufacturing and distribution systems
    - Integrating customer support/sales

Supply Chain Management(SCM)

- SCM is often used synonymously VCM
- More correctly, SCM focuses only on downstream activities
- It should also be clear that one organization’s supply chain is another organizations selling chain
- SCM involves interenterprize cooperation as a means to achieve
  - Smooth inventory flows
  - JIT inventory control
  - Increased profitability for all involved parties

Managing the Supply Chain

- Planning
  - Access to upstream demand information
  - Manufacturing capability information
  - Coordinated transportation planning
- Execution
  - Downstream access to inventory information
  - Downstream control of inventory replenishment
  - Assessment of performance

Selling (Demand) Chain Management

- Selling or Demand Chain Management is concerned with the converse of SCM
  - Production planning based on demand information
  - Coordinated transportation and distribution planning
- Management of the selling (demand) chain also involves customer relations management – both corporate and individual. It is concerned with
  - Better customer retention
  - New customer acquisition
  - Better customer service

Transformations

- Once all of this has been achieved, organizations are prepared to explore new transforming forms of e-business
  - E-Channels and E-Markets
    - Bit oriented auxiliary businesses
    - Expanded consumer bases
  - Reverse markets and auctions
  - Customer driven processes
  - Data mining of transactions