History and development of ebusiness

I. What is ebusiness?
   • Definitions

II. Where did it come from?
   • Antecedents of ebusiness

III. What’s happening now?
   • Barriers to ebusiness

IV. Where is it going?
I. What is ebusiness?

Our goals:

We would like to understand where ebusiness comes from

What are the antecedents of ebusiness?

What are some key characteristics of the infrastructure required to support it?

What are the economic, political, organizational, social and technological factors that help and hinder the spread of ebusiness?

www.elsconsulting.biz/images/ebusiness-chart.gif
I. What is ebusiness?

A variety of definitions

It is:

- sharing business information,
- maintaining business relationships,
- conducting business transactions,
- by means of telecommunications networks

Zwass, (1996)

www.cba.bgsu.edu/ijec/v1n1/p003full.html
www.reverecontrol.com/Graphics/ebusiness%2009-1.jpg
I. What is ebusiness?

It is a commercial activity dealing directly with the trading of goods and services and with other related business activities.

Electronic communication media play a central role.

These activities include:

- The communication of information
- The management of payment
- The negotiating and trading of financial instruments
- The management of transport

I. What is ebusiness?

It is

Digitally enabled commercial transactions between and among organizations and individuals

All transactions are mediated by digital technology

Commercial transactions involve the exchange of value across organizational or individual boundaries

Value can be money or goods and services

E-business is the digital enablement of transactions and processes within a firm


www.negociosenguatemala.com/ebusiness/ebusinesslogo.jpg
I. What is ebusiness?

It also refers to procedures, policies and strategies required to support the incorporation of electronic interaction into the business environment.

Information Policy Council (1997)
www.sdl.hitachi.co.jp/english/themes/02/rd200204.gif
I. What is ebusiness?

Electronic commerce denotes the seamless application of [ICT] from its point of origin to its end point along the entire value chain of business processes conducted electronically and designed to enable the accomplishment of a business goal.

These processes may be partial or complete and may encompass business-to-business, as well as business-to-consumer and consumer-to-business transactions.

I. What is ebusiness?

A working definition of ebusiness focuses on:

The exchange of goods and services across an interactive digital network

A computer-mediated and virtual market with new relationships among businesses and consumers

A digital means of exchange (digital money, secure credit card transactions)

New business strategies, models, and processes to gain a competitive edge in the digital marketplace

Technologies for privacy and to protect IP and a supportive legislative and regulatory environment
I. What is ebusiness?

Infrastructure

Customer apps

Backend

www.intranetjournal.com/features/Ecommercetutut.html
I. What is ebusiness?

Ebusiness involves online activity supporting a “virtual value chain”

Internal activity

Inbound logistics  Outbound logistics  Sales

Production processes  Marketing  Customer support

External activity
I. What is ebusiness?

It enables companies to

Be more efficient and flexible in their internal operations

Work more closely with their suppliers,

Be more responsive to the needs and expectations of their customers

Select the best suppliers regardless of their geographical location and

Sell to a global market
I. What is ebusiness?

Business to government
Transactions such bidding for government contracts

Consumer to government
Epayment of taxes, receiving govt. services

Consumer to consumer
Peer-to-peer, bartering, auctions
Ebay generated $14.7 billion in 2012
I. What is e-business?

The major players

Consumers

ISPs

Retail

Credit card companies

Banks

Government

Manufacturing

Suppliers

Corporate ISP/VAN

Dist
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IV. Where is it going?
II. Where did it come from?

Taking a broad historical perspective (Heng 2003)

13th century European commerce saw the rise of intermediaries

- Traders conducted business to make a profit by buying and selling goods and services
- This promoted efficiency between production and consumption
  - It indirectly promoted efficient utilization of resources
- It created specific markets for specific products
  - Also commercial institutions (banks) and practices (insurance)
II. Where did it come from?

B2C transactions took modern form in the late 1800s
Sears: mail order began in 1880s

Balancing trust and risk:
Send product and wait for payment?
Demand payment before sending the product?
Sending product in exchange for partial payment

This decreases risk on both sides

Reputation and economies of scale were early barriers in this form of remote commerce

Clay and Strauss (2002)
II. Where did it come from?

Credit cards were introduced in 1949 by Diners Club as a way to consolidate debt for frequent diners. They also reduced accounting burden for businesses. They are a means by which we develop an important part of our identity.

Early controls imposed by the merchant. Credit relationships strengthened by legislation.

1970 Truth in Lending Act mandated disclosure of credit terms and limited liability.

americanhistory.si.edu/dynamic/images/collections_large/NMAH1998-01263_225px.jpg
II. Where did it come from?

Led to increase in remote businesses and improvements in data transmission and technology for processing

- Improvements in logistics also helped (reducing delivery time)
- Took advantage of a nation-wide infrastructure
- Also led to an increase in credit card fraud

Credit card companies also have to balance trust and risk

- Developed verification systems to protect merchants, banks, and themselves

www.bbspot.com/Images/BBloopers/2006/credit%20card%20fraud.jpg
II. Where did it come from?

B2B transactions also took modern form in the late 1800s

The risk was minimized by the need for longer term relationships

Private institutions developed to arbitrate disputes

Could be small and decentralized or larger and centralized (trade associations)

Informal or procedural resolutions

This activity led to the Uniform Commercial Code (UCC) which standardizes business practices and the legal environment

www.barristerbooks.com/_FileLibrary/Product/717/502281.jpg
II. Where did it come from?

More recently, the globalization of commerce has paved the way for ebusiness

The development of a global telecommunications infrastructure

The pervasiveness of computing in daily life and work

The rapid diffusion of ICTs

The emergence of the networked organization

Supply chain management, just-in-time inventory, sophisticated IT

Shift to knowledge/information economy
II. Where did it come from?

Recent precipitating conditions

Business to business use of EDI

The continued decrease in the costs of computer hardware and software

The end of the NSF AUP prohibiting commercial activities on the net

The rapid growth of the web (the third wave)

The rise of the profitable ISP
II. Where did it come from?

Definitions of EDI

The transmission of unambiguous business information in standard syntax between computers of independent organizations

The interchange of standard formatted data between computer application systems of trading partners with minimal manual intervention

The electronic transfer, from computer to computer, of commercial and administrative data using an agreed-upon standard to structure the data

www.comdist.com/edi.gif
II. Where did it come from?

An example of an EDI transaction

1. Buyer --> Purchase order --> Seller
2. Seller --> Purchase order confirmation --> Buyer
3. Seller --> Booking request --> Transport company
4. Transport company --> Booking confirmation --> Seller
5. Seller --> Advance ship notice --> Buyer
6. Transport company --> Status --> Seller
7. Seller --> Invoice --> Buyer
8. Buyer --> Payment --> Seller

www.dodge-reliance.com/ebilities/images/chart.gif
II. Where did it come from?

Costs

Large initial investment in proprietary hardware and software
Changes in routine business practices
Only machine-to-machine communication
Investing in training and education
Costs of maintenance and upgrading
Adjusting to changing standards

EDI is still significant in B2B ecommerce
II. Where did it come from?

However, the use of EDI has been important in preparing businesses for ebusiness.

They understand:

- Digital information exchange over a computer network
- The exchange of digital goods and services among businesses
- Electronic funds transfer for payments

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III. What’s happening now?

Technical: The infrastructure needed to support e-business is almost in place

Hardware and software is more powerful and is dropping in price

Broadband and wireless is spreading rapidly

Telcos, ISPs, the cable company, and satellite/wireless services are competing for the last mile

The pipes on the net are high pressure fire hoses and the line into your home is a straw

Copper wire
Wireless
Fiber optics
Satellite
TV cable
Wall plug

digital-lifestyles.info/copy_images/last_mile-lg.gif
III. What’s happening now?

Unique features of ebusiness technology

Ubiquity of ICTs and the growth of wireless broadband
  Lowering costs and extending the marketspace
Global reach of the net across national boundaries
Universal standards allowing interconnection
Richness and interactivity of digital media
Information density allows us to store more bits
Personalization and customization allows refined marketing

netstorm.net/images/wireless_logo.jpg
III. What’s happening now?

Social: The net is redefining the marketplace

   It is becoming interactive and information routinely flows both ways

   The conventional distinction between buyer and seller is blurring on the web

   People are not passive and see themselves as content providers (broadcasters)

Legal: The legal and regulatory environment is in flux

   Current policy battles: taxation, spam regulation, the definition of the “nexus” of business, protecting privacy, protecting intellectual property
III. What’s happening now?

Economic: We are beginning to understand the economics of networking and ebusiness

There are many ebusiness experiments underway

Product promotion and customization through direct connection to consumers

Developing and exploiting new sales channels (products, information, advertising, transactions)

Reduced costs of business transactions through a public shared infrastructure

Reducing time to market for certain types of products
III. What’s happening now?

And:

Improving customer relationships with intelligent systems for service and support

Improving marketing and targeted advertising through the collection of detailed customer information

New corporate branding and image creation

Using the net for R&D and product development

Developing of new business models based on features of the new marketplace

www.dain.co.uk/images/complaint_department2.jpg
III. What’s happening now?

http://home.comcast.net/~freedmanr/cartoon/ecommmerce.gif
III. What’s happening now?

Institutional barriers to ebusiness

Technical barriers

- Lack of bandwidth (B2C)
- Lack of networking standards across vendors (B2B)

Few institutions to regulate opportunism

- Lack of quality control leads to seller and buyer fraud
- Weak regulation of privacy and IP issues

Research indicates that private, reputation based institutions will pick up the slack
III. What’s happening now?

With opportunism and lack of regulation, why engage in ebusiness at all?

What is your incentive to engage in the transaction with an entity you do not know?

- No clear laws or regulation
- Private order institutions use group norms and pressures
- Public legal institutions use the threat of law
  - This always involves a cost
III. What’s happening now?

Current barriers to ebusiness

Lack of trust and increased risk

Increases as fixed and marginal costs of starting a business fall

Security problems protecting personal information

Verification problems with digital goods

B2C: lack of broadband and difficulty of establishing a delivery infrastructure

Reducing the time from order to truck to delivery

B2C: Lack of common standards for exchange

Clay and Strauss (2002)
III. What’s happening now?

Business process barriers

Many e-tailers lose money on every transaction

Some product categories (toys) are at a disadvantage: difficult to pick, pack, and ship and attract small orders

Inexperience and lack of scale inflate fulfillment costs as much as $12-$16/order

Inexperience with merchandising and sourcing, intense price competition, and inventory management and product return problems lead to poor gross margins

Hecker (2001)
III. What’s happening now?

Estimated Q4th quarter U.S. eretail sales as a % of total quarterly retail sales: Q4 2003–Q4 2012

www.census.gov/retail/mrts/www/data/pdf/ec_current.pdf

$59.5B 5.2% of total retail but up 15% from Q4’11

Annual total: $225.5B
5.4% of all retail
I. What is ebusiness?

Most e-commerce is conducted as business-to-business e-commerce

U.S. Census Bureau E-Stats: ecommerce was worth $4,129 billion in 2010

B2B e-commerce totaled 90% of online sales in 2010

  Manufacturers totaled $2,283 billion, 46.4% of all sales, up 21%

  Wholesalers totaled $1,422 billion, 24.6% of all sales

10% was in the form of B2C e-commerce

  2010: B2C e-tail sales totaled $169 billion, up 16%

  4.8% of total retail sales
I. What is ebusiness?

The total number of net users will increase to 3.5 billion from 2.2 billion at the end of 2011

Global B2C e-commerce will pass the $1.25 trillion mark in 2013

The US is the world’s single biggest e-commerce market, followed by the UK and Japan

Growth rates in those countries will be 10-15% a year

European B2C sales grew 19% in 2011 to $307 billion

China’s e-commerce sales grew more than 130% in 2011

www.internetretailer.com/2012/06/14/global-e-commerce-sales-will-top-125-trillion-2013
I. What is ebusiness?

2004-12: e-commerce grew from 5 to 10% of all U.S. consumer spending

Mobile now accounts for 1 in 10 dollars spent

Online buyers spent an average of $293 in the 2012 holiday quarter, up 8%

Total online buyers also rose 6% to 194 million

The average number of transactions per buyer jumped 4% to 2.91 in the quarter

75% of the U.S. net users made at least one online purchase during Q4 2012

III. What’s happening now?

Gartner Group’s “magic quadrant”

www.gartner.com/technology/research/methodologies/research_mq.jsp
III. What’s happening now?

An example of ecommerce infrastructure providers

mynewnotesblog.wordpress.com/2011/11/14/gartner-ibm-leder-innen-e-commerce/
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IV. Where is it going?
IV. Where is it going?

Pew Internet Life survey, 2011

% of American adults in each generation who own each device

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Source: Pew Research Center’s Internet & American Life Project, August 9-September 13, 2010 Tracking Survey. N=3,001 adults 18 and older, including 1,001 reached via cell phone. Interviews were conducted in English (n=2,804) and Spanish (n=197).

IV. Where is it going?

The kids!

78% of teens have cell phones

37% of all teens have smartphones, up from 23% in 2011

23% of teens have tablet computers, comparable to the general adult population

93% of teens have a computer or have access to one at home

71% teens with home access say the computer they use most often is shared with other family members

IV. Where is it going?

Mobile access is common among American teens

74% of teens 12-17 access the net on cell phones, tablets, and other mobile devices at least occasionally

25% of teens are “cell-mostly” net users compared to 15% of adults

Among teen smartphone owners, 50% are cell-mostly

34% of girls 14-17 mostly go online using their cell phone, compared with 24% of boys 14-17

Among older teen girls who are smartphone owners, 55% use the net mostly from their phone.
IV. Where is it going?

Directions for small businesses

Invest in mobile:

2012: online shopping on Thanksgiving and Black Friday was up over 14% versus 2011

24% of consumers used a mobile device to visit a retailer’s site

On Cyber Monday, purchases made from mobile devices accounted for 13% of all online purchases

By 2015 mobile web usage will actually outpace PC web use (International Data Corp, 2013)

IV. Where is it going?

Video content

For online retailers, an active social media presence is essential to maintaining a core consumer base and quickly marketing the business.

Small online retailers need to start leveraging the power of online videos to sell more.

The opportunity to develop video content is too big to ignore.

This includes little cost outside of time and some basic video editing software.
IV. Where is it going?

Social advertising

Advertising on social media is critical to online strategies

Social media offers some of the best targeting available to business owners

Note that the amount of time U.S. consumers spend on social media sites on a daily basis is increasing

Facebook: extremely popular

Upside: Brand loyalty, community development, multimedia

Downside: people feel manipulated
IV. Where is it going?

Twitter

Immediacy, one-to-one communication, visibility, demonstration of leadership, brand awareness

LinkedIn

Networking, B2B contacts, digital corporate profile, use of groups

YouTube

Video, video, video

Pinterest

Pictures, pictures, pictures
IV. Where is it going?

Digital couponing

The number one method of savings for consumers (comScore, 2013)

35% said digital coupons “helped with new ideas”

The discovery of something they didn’t know they even wanted to purchase

35% preferred receiving coupons online versus any other format
IV. Where is it going?

A potential reordering of the global economy

Competitive advantage to companies that are successful early adopters of e-business

This will be true in nations with government economic and regulatory support for e-business

Nations with highly trained labor forces will benefit from distributed value chain

IV. Where is it going?

Businesses have to place ebusiness in a larger context than traditional commerce

How can they exploit the digital product marketplace?

   Dell claims that the efficiencies of web based marketing give them a 6% profit advantage

   Redesign business processes to take advantage of the rapid and real time information and data exchange on the net

   Develop a secure and widely acceptable framework for digital business contracts
IV. Where is it going?

Consumers will develop new behaviors and will:

- Routinely check prices globally
- Engage in real-time negotiation with multiple sellers creating a more dynamic and fast moving marketplace for certain products
- Make more considered purchasing decisions based on more and better information
- Publicly share experiences with others about products, customer support, and companies
IV. Where is it going?

There will be a shift towards an “economy of attention”

Basic assumption: attention is an intrinsically scarce resource

Information <-> Attention (a two way flow)

There is competition for attention

Capturing attention can lead to action

The problem is how to capture and keep it

Obtaining attention is a source of wealth

Portal advertising costs bear this out

www.btinternet.com/~connectionsinspace/Spatial_Visions/Optical_Illusion/profile.gif
IV. Where is it going?

The components of a virtual economy

- Virtual players
- Virtual processes
- Virtual products

The net
IV. Where is it going?

Virtual players

People, organizations, or automated agents with an online presence

Virtual products

Digitized objects/services: currency, text, multimedia, tickets, reservations, electric usage, pay-for-view, smart houses

Virtual processes

Participants interact digitally, interactively, and in real time (online ordering/payment; JIT inventory control; customized advertising)
IV. Where is it going?

Virtual intermediaries

Provide essential services: certification, authentication, quality assurance, copyright clearance, distribution

Education brokers: bringing instructors and students together online

Market organizers: establish meeting places for buyers and sellers (auctions...)

Personalized service providers: shoppers, information filtering, travel agent, financial services
IV. Where is it going?

The evolution of the virtual firm

Assumes that they exist in an environment where transaction costs are low

They do not have to be based in a single geographic location

Business processes can be distributed globally and take place on the net

The value chain is digital
IV. Where is it going?

Also:

Products can be delivered through a digital web of business relationships with producers, financiers, distributors, consumers

Producers, suppliers, warehouses, managers, administrator, subcontractors are all linked through an extranet

Many functions can be easily outsourced (accounting, personnel management, training, public relations)
IV. Where is it going?

Convergence in ebusiness

Products, processes, and infrastructure all converge in the global digital marketplace

Product: audio, video, still images, text are all in the same digital format

Process: multiple uses from a virtual process make other processes redundant

Consumer feedback is used for product R&D, sales, marketing, pricing, and service
IV. Where is it going?

Things to do

Overcome the limitations and asymmetries of the infrastructure

Implement hardware and software to fully exploit bandwidth, especially to the last mile

Provide “universal access” at reasonable cost


Integrate electronic payment into the buying process
IV. Where is it going?

And:

Develop a secure and reliable system for electronic banking: emoney exchange and transfer
Develop a system for microtransactions
Build a consumer marketplace
Convert browsers into buyers
Develop new approaches to web site design that encourage purchasing
Develop new business models for this CME