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SCHOOL OF SCIENCE AND TECHNOLOGY

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**COURSE TITLE:CONCEPTS AND APPLICATIONS OF
E-BUSINESS**

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CONTENTS	PAGE
Module 1 Introduction to Basic Concepts and Skills	1
Unit 1 Understanding e-Business and e-commerce I	1
Unit 2 Understanding e-Business and e-Commerce II	1
Unit 3 Exploring e-Business Technologies.....	1
Unit 4 Electronic Impact and Technology	1
Unit 5 Concepts and Applications of e-Business Infrastructure.....	1
Module 2 Techniques and Methodology for Site Development..	1
Unit 1 e-Business Strategy and Implementation in Firms	1
Unit 2 Framework for e-Business.....	1
Unit 3 e-Business Chain	1
Unit 4 e-Business Requirement and Benefits	1
Module 3 Guide for Building E-Business Sites	1
Unit 1 The e-Business Modeling	1
Unit 2 The e-Business Evolution Phases	1
Unit 3 The e-Business Project Management	1
Unit 4 The Application Service Providers	1
Module 4 Developing and Enhancing a Product Catalogue	1
Unit 1 Developing a Product Catalogue and Order Processing	1
Unit 2 Transforming Businesses	1
Unit 3 Building a Web Presence Site.....	1
Unit 4 Application Development Process	1
Unit 5 Electronic Infrastructure and EDI	1
Unit 6 Marketing Strategies for e-Business.....	1
Unit 7 Legal, Ethical and other Public Issues.....	1
Glossary	287

MODULE 1 INTRODUCTION TO BASIC CONCEPTS AND SKILLS

Unit 1	Understanding e-Business and e-Commerce I
Unit 2	Understanding e-Business and e-Commerce II
Unit 3	Exploring e-Business Technologies
Unit 4	Electronic Impact and Technology
Unit 5	Concepts and Applications of e-Business Infrastructure

UNIT 1 UNDERSTANDING E-BUSINESS AND E-COMMERCE I

CONTENTS

1.0	Introduction
2.0	Objectives
3.0	Main Content
3.1	e-Commerce
3.2	e-Commerce Site Features
3.3	What is e-Commerce Marketing?
3.4	Beginning & Feature of e-Commerce Marketing
3.5	What are the Benefits of e-Commerce Marketing?
3.6	What is e-Commerce Web Design?
4.0	Conclusion
5.0	Summary
6.0	Tutor-Marked Assignment
7.0	References/Further Reading

1.0INTRODUCTION

The rapid development of internet and e-Commerce has dramatically changed the role of information technologies in business. Evolving into e-business has become a global trend and is a new paradigm in information systems. In this unit you will go through brief introductions to e-Commerce, including what it is, how far it has come and features specific to e-Commerce. You will also be introducing, defining and explaining e-Commerce marketing and e-Commerce web design. In addition, you will be exposed to many of the biggest benefits to conducting business Online, marketing Online and designing the site correctly.

2.0 OBJECTIVES

At the end of this unit you should be able to:

- Define e-Commerce
- Identify the site features of e-Commerce
- Understand e-Commerce marketing
- Contribute to the discuss on beginning and future if e-Commerce
- Discuss the benefit of e-Commerce marketing
- Understand the concept of web design.

3.0 MAIN CONTENT

3.1 e-Commerce, e-Business, Marketing & Design Overview: e-Commerce

e-Commerce, which is short for electronic commerce, is the process used to distribute, buy, sell or market goods and services, and the transfer of funds online, through electronic communications or networks. Electronic commerce is commonly referred to as Online commerce, Web commerce, e-Business, e-Retail, e-Tailing, e-tailing, e-commerce, e-Commerce, e-commerce, e-com or EC. e-Commerce basically began (although debated) in 1994 .

3.2 e-Commerce Site Features

Typical business web sites do not usually have the same features as e-Commerce enabled web stores do. In order to effectively distribute, market and sell goods or services Online you will need certain features only found on e-Commerce sites. Features may include:

- a shopping cart,
- ability to process credit cards,
- online product catalog,
- automated inventory system,
- databases,
- bulk email program,
- statistics tracking

other non-computer technologies such as:

- product warehousing and
- shipping transportation.

3.3 What is e-Commerce Marketing?

e-Commerce Marketing Defined:

e-Commerce marketing can be defined in many different ways and can include both Online or Offline campaign strategies. Most often, it's considered to be the marketing of goods and services over the Internet or any other electronic network (like a mobile phone or pda). e-Commerce marketing is commonly referred to as:

- e-Commerce optimization,
- online marketing,
- search engine marketing,
- search engine optimization,
- catalog optimization,
- catalog, product,
- merchant marketing and many more variations of those terms.

3.4 Beginning & Future of e-Commerce Marketing

e-Commerce marketing began when the first shopping cart enabled sites started popping up all over the Net. As competition in major markets such as consumer electronics, gifts, clothing or apparel and outdoor goods started to grow so did the need for e-Commerce marketing. Online retailers who first began to market through the Internet saw huge potential for success Online and many of them saw enormous profits all the way up until the dot com boom.

SELF ASSESSMENT EXERCISE

Identify the site features of e-Commerce.

Marketing Strategies & Techniques

e-Commerce marketing today is typically made up of several creative or unique mixes of traditional and new-age marketing strategies that can include:

- techniques related to direct mail,
- email marketing,
- search engine optimization,
- CPC or sponsored listings,
- building related links,
- establishing brand recognition and social media marketing.

There are many other ways to market an e-Commerce store and new ways of reaching out to potential customers are always being discovered and tested.

3.5 What are the Benefits of e-Commerce Marketing?

The processes involved with marketing products on the Internet and increasing company or brand recognition among consumer markets have several benefits to both Online shoppers and merchant store owners. The biggest benefits of e-Commerce marketing include:

- less costs than print advertising,
- helps build customer relationships,
- brand credibility

It costs less to get an e-Commerce marketing campaign running and operational.

3.5.1 Tax Breaks for Conducting Business Online

It is common knowledge that conducting business Online has certain tax advantages compared to brick-and-mortar selling. Many e-Commerce merchants who qualify for such tax deductions may find that they can save more in taxes than if they sold using traditional retail or a physical storefront. Home-based e-Business can deduct many of the same things traditional businesses can. Traditional businesses can:

- write-off utility,
- rent or mortgage bills as costs of doing business

Online merchants can also write-off certain portions of utilities. Vehicles are another common deduction along with office equipment and other time spent on setting up or running the business. Consider the tax benefits you could reap by conducting business through e-Commerce.

3.5.2 Cheaper than Print Advertising

Many traditional businesses are used to more traditional marketing campaigns such as print and yellow page advertising. Many traditional business owners are not aware that a majority of e-Commerce marketing strategies are far cheaper than any of the best Offline, print advertising methods that have been used for years. Traditional advertising is still a quality form of marketing, however it is not always cost effective, especially for small businesses. Print advertising can get expensive as there may be a need to update regularly, which requires new work be

planned and generated. It is much quicker and more cost effective to update and maintain e-Commerce marketing campaigns, especially as technology continues to improve. By conducting business Online and using the proven form of e-Commerce marketing, merchants have the potential to generate far more in Return On Investment (ROI) with less spend than they could ever hope to expect from costly print advertising campaigns.

3.5.3 Interactive Ads or Marketing Campaigns

Using advertising that engages potential customers is key in today's fast paced, little time consumer shopping space. One benefit to e-Commerce marketing is the merchants ability to develop and improve a number of interactive advertising or marketing campaigns designed to reach out and engage shoppers. Videos, flash, presentations, graphics, moving animations; they can all be used as interactive devices to help entice shoppers to drop in and shop around for the products or services offered. Interactive ads and applications on the Web are predicted to reach new heights as technology improves.

3.5.4 Flexible Ad or Marketing Campaigns

Many traditional marketing strategies are limited in what they can offer and what kind of flexibility each initiative has. For instance, with print advertising there's only so much you can do, but with e-Commerce marketing there's literally no cap and no end to the flexibility of nearly any campaign. Merchants can develop more creative marketing ideas and launch them using the power and assistance of the Web for both delivery and functionality. e-Commerce marketing initiatives can be automated and are much more flexible than many of the traditional marketing or advertising methods.

3.5.5: Builds Lasting Customer Relationships

The relationships you form with shoppers and existing customers can very well determine the overall success of any business, Online or off, however e-Businesses have a lot more tools, methods and means of building long standing customer relationships than traditional businesses do. Technology and the reach of the Web has made it easier for e-Commerce merchants to form long lasting relationships. That, combined with tools that make customer management and servicing more efficient, using up less time, has also sparked more creative ways to market to customers Online. e-Commerce marketing and conducting business Online can have a direct influence on how customers view the overall brand or product. If done correctly, it will help build lasting customer relationships, which in itself has benefits.

3.5.6: Helps Build Brand Credibility:

In many of the same ways e-Commerce marketing helps to engage and get to know customers, it also has benefits which may increase brand awareness and credibility among shoppers looking for what you sell. With the ever expanding list of Online marketing channels, it's getting easier for e-Commerce merchants to spread the word and saturate certain areas of the Web with their products and brand. As shoppers scour the Web for information about a product that interests them they notice the companies and brands that they see, many take note and store them away for next time. By utilizing the proper marketing channels in your niche, you may very well find yourself building long standing credibility and brand awareness among shoppers and existing customers. Better brand awareness and credibility also helps to increase word of mouth buzz.

3.5.7: Gather Feedback from Customers:

Having a website that displays and offers products for sale is a great way to attract customers, make money and grow a business, however many e-Commerce merchants fail to see all the additional benefits of running an e-Commerce business like their ability to gather feedback about the site, brand or products directly from customers or shoppers. e-Commerce marketing initiatives aren't always about a promotion or selling the product, some are meant to gather information or feedback from customers about how the business can improve. Conducting business Online and offering polls, questionnaires and feedback forms is a great way to get direct input from existing customers and even shoppers who haven't yet purchased.

3.5.8: Conduct Cheap Market Research:

Many e-Commerce merchants use their site, customers and competitors as a way to conduct market research surrounding a particular product or one in which they hope to introduce in the future. It's much easier to catch a glimpse into a particular selling market using the resources and data from Online businesses, including your own. Trying to conduct market research for a brick and mortar store can be difficult and may take much time to plan and execute. With the availability of data on the Web and through the use of new technologies offered on the Web, e-Commerce merchants are able to conduct market or product research quickly, efficiently and without hassle.

3.5.9: Lower Startup Costs/ Increase Efficiency:

Many times it is much cheaper and takes less startup capital to open up an e-Commerce business compared to a retail store location or chain. Online business does not require as many of the ingredients needed in business as a traditional business does. There is typically:

- no permits,
- fewer licenses,
- no lease to pay on,
- smaller utility bill,

less or no employees to hire

no inventory to stock or manage on shelves.

By starting out the business with less investment capital or startup funds, it can help to increase efficiency and leaves more funds available for actually marketing the brand or products.

3.5.10: Lower Startup Costs/ Increase Profitability:

As mentioned, it cost far less to startup an e-Commerce business than a traditional retail business. For many of the same reason that lower startup costs help to increase efficiency, they also help e-Commerce merchants to potentially increase profitability. Obviously, if it takes less of the bottom line to get things up and running it will take less in return to generate a profit off of the e-Commerce marketing tactics you choose to use. As mentioned, e-Commerce marketing is cheaper than traditional advertising, so if it costs less to conduct business Online and costs less to market Online, than it will take less in return to actually turn a profit, helping anyone's chances for increased profitability.

3.5.11: Increases Growth or Opportunity Potential:

Marketing Online has the potential to increase store growth at a much quicker rate than traditional marketing or retail business. e-Commerce marketing can also generate more opportunities for any business no matter the products you sell and potentially at a much quicker rate. Major media networks may pick up on you via Online channels and report your business to consumers, while you may not have ended up on their radar had you only sold offline. That's just one example, there are many more opportunities and a much higher chance of early growth through conducting and marketing an e-Commerce business. The Online market offers a much fairer playing field and opens up doors that otherwise might be closed off to a retailer. It allows nearly any business, no matter their size to grow and have the same potential opportunities as larger sellers do.

3.5.12: Global Market Reach:

The World Wide Web spans across and reaches exactly that, the world. With the reach and technology offered through e-Commerce, merchants have the ability to target consumers anywhere in the world, even smaller sections or local regions. e-Commerce marketing initiatives can be deployed in a variety of ways, but the reach may span globally, rather than only within a certain city or region. having this type of reach opens up the possibility that customers can find the business from anywhere they reside and buy from them without having to travel to another location. having global market reach means potentially having customers world wide, without the limitations of traditional media or geographic boundaries.

3.5.13: Potential to Market Any Product:

The internet constantly has millions of users searching for a vast number of different products or services. If it exists, chances are there's at least a few people searching for it Online. e-Commerce marketing and selling

Online allows merchants to target and reach these audiences, even on a limited budget. This creates the potential for anyone to sell anything Online (assuming it's legal to sell). Merchants can now offer niche items and market those items to the right individuals using creative and innovative e-Commerce marketing ideas.

3.5.14: Flexible Schedule or More Personal Time:

Running an Online business can be as time demanding and require just as much attention as a traditional business, however it does give merchants the ability to maintain a flexible schedule and can possibly even allow them more time away from the business to spend doing other things they love. Having a schedule we control and personal time is something everyone desires. Conducting business Online and marketing through the different channels the Internet provides finally gives more of us the freedom we desire. As mentioned, it typically takes far less time to startup and launch an Online business, however that doesn't necessarily mean it will take less time to manage. The time you save can be used however you please.

3.5.15: Ability for Multiple Revenue Streams:

Once you have successfully launched and marketed one Online business you may wish to do it again with another e-Commerce business, or maybe you already have a full-time job and you run a successful e-Business on the side. Either way, by conducting business Online you open up all kinds of potential for multiple revenue streams. Many merchants have been able to successfully maintain their Online stores while still working their 9 to 5 job. Others have opened a chain or multiple Online stores in order to generate multiple streams of revenue. e-Commerce marketing makes it easier to own and operate more than one business or entity Online.

3.5.16: Streamlines Sales Process & Ad Copy:

e-Commerce marketing and offering products for sale over the Internet can help businesses streamline sales processes and advertising copy used within marketing campaigns. With more customers and a greater reach it is easier for merchants to gain insights and feedback as to how marketing initiatives are performing and whether or not each one is generating the desired ROI. Testing, experimenting and rotating campaigns or ad copy can help businesses to improve and streamline many processes within the store, from processes related to customers, sales or marketing.

3.5.17: Helps Promote Brick-and-Mortar Businesses:

So, what if you own a brick-and-mortar business already and you are thinking of expanding into e-Commerce? Don't think long, it's a great idea and the timing couldn't be more perfect. Many traditional business owners are finding that by expanding their business model and marketing plans into the Online space that they in turn get more exposure to their physical stores. e-Commerce marketing initiatives work great for promoting an offline business, however you still need an

Online location for customers to reference on the Web. In a perfect world all brick-and-mortars would also have a presence Online, but it's simply not the case as of yet. Jumping into e-Commerce and using the power of Online marketing is a great way to promote and help grow a retail brick-and-mortar location.

Self Assessment Exercise 1

1. Define e-Commerce marketing?
2. What are the benefits of e-commerce marketing?

3.6: What is e-Commerce Web Design?

e-Commerce Web Design Defined:

e-Commerce web design is generally defined as the planning, creation and arrangement of files, text, graphics and processes used within an e-Commerce enabled website. The files make up different sections of the site which typically include pages, categories, subcategories and products. e-Commerce web design is commonly referred to as web design, web development, site design, site development, shop design/development, store design/development, web store design/development, e-Commerce design/development or shopping cart design/development (including variations of these terms).

3.6.1: Beginning & Future of e-Commerce Web Design:

e-Commerce designs have evolved over the years from plain looking designs with few graphics and little appeal to fully interactive e-Commerce sites using the latest in graphic design and programming technologies. The days of simple layouts and designs are pretty much done with as competition increases and more merchants are attempting to improve the look, feel and usability of their e-Commerce designs. Now it is more common to see gradient graphics, more options for shoppers, features surrounding customers, better layouts, faster load times, videos, more payment options and much much more. New age e-Commerce design is about being creative and original, pretty much anything that can be thought of can be accomplished using current e-Commerce design technology for an e-Commerce business.

3.6.2: e-Commerce Design Methods & Features:

e-Commerce design today typically consists of several unique features or elements and can be performed using a variety of popular web design methods. A database, shopping cart, ability to accept payments, security certificate, products, policies and more are all common e-Commerce design features. There are also e-Commerce design and shopping cart process best practices that can make the task of knowing how to design and e-Commerce site easier. Popular methods of e-Commerce design include using HTML (and stem languages), ASP, ASP.net, PHP, CSS, Ajax, JavaScript, XML and others. Popular methods for creating e-Commerce graphics include using Photoshop, Flash and other graphics or video programs.

3.6.3: What are the Benefits of e-Commerce Web Design?

3.6.3.1: Allows for Faster, Easier, Efficient Discovery:

An Online business' ability to be discovered by shoppers, current customers and search engines is extremely important for merchants who hope to grow their e-Commerce venture into a success. Quality e-Commerce design allows for quicker, easier, more efficient discovery by consumers or search engine bots. By using e-Commerce design best practices and following certain usability guidelines, you'll find that the discovery process will nearly take care of itself, meaning the merchant will have little to no maintenance down the road. The faster, easier and more efficient you can make your processes of discovery the faster your business will grow to the next stage. For best results, keep improving, keep testing and always refine your designs.

3.6.3.2: Potential to Improve Accessibility:

Having an e-Commerce business that is easy to discover is only part of the formula within e-Commerce design. In addition, merchants will need a store that is accessible to their shoppers, existing customers and even search engines. Accessibility is a major factor when designing and implementing a site, if users and search engines cannot access ALL your important pages you will find that it may dwindle your chances of success or at the very least slows down chances you would have had if the store was originally built with accessibility best practices in mind. Use hyper links rather than image links, utilize a sitemap, keep track of indexed pages and link your site together in an organized, easy to understand, easy to use way. Make sure that pages that lie deeper within the site can be accessed from pages higher up in the site and vice versa. Making your business site more accessible in the beginning will save the merchant much time, hassle and re-designing in the end.

3.6.3.3: Potential to Improve Usability:

Using quality e-Commerce design methods will not only make your site easier to discover and access, it can also potentially improve how shoppers, current customers and search engine use the site. The way in which a site is built can interfere with how users interact and use the site. If you put up features that turn into roadblocks, the site will become less usable. If you put up features that are designed with usability best practices in mind you'll find that shoppers will be happy with their experience, customers will return and search engines will give you the placement you deserve within their listings. Many merchants have no idea that the way in which a site is designed can actually make or break the sites usability in the end. Study what users in your niche want, give it to them and make it easy to understand, within a visible location that is easy for anyone to use.

3.6.3.4: Easier to Maintain Over Time:

If an e-Commerce design is done correctly from the very beginning, it will make the task of design maintenance much easier over time. Typically, merchants will have to update their site regularly anyway, but using design best practices from the start will make you updates less frequent and easier to implement. not only that, but whenever new e-

Commerce design guidelines are discovered, you'll find that it takes you less time and less steps to catch up with the pack, giving you more time to actually run the business, manage customers, products and things like marketing strategies or promotions. In short, make your site easy to discover, make it accessible to users and make it usable to anyone who may eventually land on your page. In the end, you'll spend less time updating and maintaining your site than others who were not aware, ignored or didn't pay close attention during the design and implementation phase of the business.

Self Assessment Exercise

What are the benefits of e-Commerce Web Design?

4.0 Summary

Since the dot com boom, e-Commerce marketing has evolved into a whole new mix of strategies and techniques designed to increase exposure from a multitude of channels to the e-Commerce seller. Marketing professionals have spent countless hours testing, experimenting and reporting on which strategies work and which seem to have no positive affects. Now there are many different ways to market an e-Commerce enabled site.

5.0 Conclusion

This unit was used to present the concepts : e-Commerce, e-commerce marketing, e-Commerce web design. The next unit will engage you in more exposure on e-Business and e-Commerce.

6.0 Tutor-Marked Assignments

- 1a. What is e-Commerce marketing?
 - b. Discuss the benefits of e-Commerce marketing.
- 2a. What is e-Commerce?
 - b. What are the benefits of e-Commerce Web Design?

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Unit 2: Understanding e-Business and e-Commerce II

Table of Content

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 e-Commerce/e-Business in the new economy: Internet
 - 3.2 Defining e-Commerce and e-Business
 - 3.2.1 What is e-Commerce?
 - 3.2.2 e-Business
 - 3.2.2.1 Extent of e-Business Application
 - 3.2.2.2 e-Business and older solutions
 - 3.2.2.3 Typical Business transactions in e-Business
 - 3.3 e-Enterprise
 - 3.4 e-Business and Countries
 - 3.5 Impact of e-Commerce on the economies and societies
 - 3.6 Obstacles to e-Business/e-Commerce
 - 3.7 The 'Digital Divide'
 - 3.8 The new economy model
 - 3.9 Complexities of e-Commerce/e-Business transactions
 - 3.10 Intellectual Property Rights and e-Commerce
 - 3.11 e-Business Readiness check
- 4.0 Summary
- 5.0 Conclusion
- 6.0 Tutor-Marked Assignments

7.0 References/Further Reading

1.0: Introduction

Today e-Business is a fast emerging reality and an imperative that no business setup can anymore ignore or avoid. For success in the new “digital economy” and actualizing the potential of e-commerce and e-business, it is not enough just to have the physical infrastructure. Once the infrastructure is in place, an optimal environment would require the availability of inexpensive computer hardware and software, wide and unrestricted access to the Internet at inexpensive rates, reliable electric power, and a banking system supportive of entrepreneurship. What is essential is an ‘*info-structure*’ which encompasses, amongst other requirements, the appropriate legal and financial framework; a political and business environment conducive to its development; and the human resource capacity to participate in it. It is therefore important to assess each entity’s e-readiness on such a framework so that in doing so, the gaps would become apparent and strategies for action evident.

2.0 Objectives

At the end of this unit you will be able to:

Define e-Commerce and e-Business

State the typical concern of e-Commerce

Identify the typical transactions in e-Business

Define e-Enterprise

Understand the impact of e-Commerce on the economy and societies

Discuss possible complexities in the type of transactions that are possible with anti-virus program

List the prerequisites for e-Business.

3.0 Main Content

3.1: e-Commerce/e-Business in the new economy: The Internet

e-Commerce and e-Business are both, products of the Internet. The Internet is basically a vast and ever increasing network of computers across the globe that are interconnected over existing telecommunication networks. Simply described, it is a, or *the*, network of networks. The economic rationale of the Internet comes from e-Business and its developmental and moral platform will come from its impact in areas such as e-Government.

3.2: Defining e-Commerce and e-Business

It is important to elaborate on the definitions of e-Commerce and e-Business as that will help determine the scope and perspective of this unit. e-Commerce has been simply defined as conducting business on-line. In the World Trade Organisation (WTO) Work Programme on Electronic Commerce, it is understood to mean *the production, distribution, marketing, sale or delivery of goods and services by electronic means*. Broadly defined, electronic commerce encompasses all kinds of commercial transactions that are concluded over an electronic medium or network, essentially, the Internet. Electronic Commerce is a new way of doing business. It is transacting or enabling the marketing, buying, and selling of goods and/or information through an electronic media, specifically the Internet.

3.2.1: What is e-commerce?

e-commerce is the act of selling products and services on the Internet. It is *one* element of e-Business, the primary element.

Typical Concern of e-commerce

business-to-business (B2B)

and business-to-consumer (B2C) selling of products and services.

e-commerce is typically implemented as some form of an electronic store (e-store).

The most common implementation of e-Business is as an additional, or in some cases primary, storefront. By selling products and services online, an e-Business is able to reach a much wider consumer base than any traditional brick-and-[mortar](#) store could ever hope for. This function of e-Business is referred to as e-commerce, and the terms are occasionally used interchangeably

From a business point of view, e-Commerce is not limited to the purchase of a product. It includes, besides e-mail and other communication platforms, all information or services that a company may offer to its customers over the Net, from pre-purchase information to after-sale service and support. There are essentially two major uses of e-commerce. The first is to use it to reduce transaction costs by increasing efficiency in the use of time and procedures and thus lowering costs. The other is to use it both as a marketing tool to increase sales (and customer services) as well as to create new business through it -- for example, IT enabled business, callcentres, software and maintenance services etc. as well as 'digital commerce'. It is thus a tool for both existing businesses as well as an opportunity for new business, both for existing companies as well as for new entrants. E-Commerce is seen as being B2C (business to consumer), B2B (business to business)

and B2G (business to government). Of these three, B2B has been the most successful though recent reverses in the stock market valuations of high-tech stocks and the slowing down of the U.S. economy in particular is casting doubts on this. In future perhaps the major gains and usage of e-Commerce and the Internet will come from 'old economy' enterprises using it, governments using it (e-Government), and social sectors using it (e-education and e-health).

3.2.2: e-Business

E-Business is the application of Internet technologies to business processes. However it is more than information technology tools or straight e-commerce. It also implies that the organisation, especially its managers, are willing and receptive to radical changes that such new business techniques and tools bring. It implies organizational process and organisational culture re-engineering, for a true transition into the new economy.

e-Business is the use of electronic, computing, and Internet-based technologies to change traditional revenue models and business designs to the mutual benefit of customers and vendors. You can look at it as the replacement of ineffective existing methods of information flow in the supply and value chains of an organization, and creating new ones with Internet-based, computing, and communications technologies. e-Business liberates scarce organizational resources like manpower, materials, money and time, which can then be redistributed for more value-added tasks, to bring incremental revenue and profits to customers and suppliers. e-Business, by definition, implies the usage of Internet-based technologies.

3.2.2.1: Extent of e-Business application:

Initially, e-Business was used to replace current methods of information (bits and bytes) flow within and outside organizations. Current methods of information flow to and from customers can be slow and expensive, and contribute costs that are unsustainable in environments of extreme competitiveness.

Elimination of the non-value added intermediaries in the value chain (or disintermediation) can deliver substantial benefit to both the producer and the consumer. Forecasters predict that distribution costs will collapse substantially in the next decade, significantly altering all methods of consumer and business buying behavior! Prior to e-Business, automation required proprietary client-server solutions- communicating through modems or dedicated lines.

3.2.2.2: e-Business and older Solutions

e-Business is different from these older solutions in a significant way: the user does not have to be provided with unique software at the

desktop (or laptop)- all the user needs is a commonly available browser to access Web-based information.

Thus, e-Business eliminates the resources and costs needed to distribute and maintain software of various antiquities in the users' domain. This was a substantial waste. With Internet-based technology, the "infobase" is written once and can be accessed from anywhere, anytime. Also, the cost of keeping it constantly updated and current is minimal, without incremental distribution and maintenance costs.

e-Business is a business process transformed to leverage world wide web (Internet, intranet, and extranet) technology for business benefit. It is about using the Internet infrastructure and related technologies to enable business anywhere and anytime. e-Business is not a technical issue, but rather a business issue that leverages the Internet infrastructure that exists as the delivery vehicle for a variety of goods and services.

3.2.2.3: Typical Business transactions in e-Business

Typical business transactions in e-Business includes:

providing goods and services for sale,
access to product and service information,
marketing and sales,
communications with customers and suppliers.

An e-Business may also use the Internet to acquire whole products or supplies for in-house production. This facet of e-Business is sometimes referred to as e-procurement, and may offer businesses the opportunity to cut their costs dramatically. Even many e-Businesses which operate without an electronic storefront now use e-procurement as a way to better track and manage their purchasing.

Self Assessment Exercise

1. How would you define e-Commerce?, e-Business?
2. What the typical business transactions in e-Business?

3.3: e-Enterprise

An *e-Enterprise* (participating in e-Business) is defined as an enterprise prepared to conduct commerce in this new economy. This means it has created and embraced a business strategy informed by changing economics, new opportunities, and new threats. It has laid down the necessary technology infrastructure to support new business processes. It has used information technology to hone internal processes such as human resources, work flow management, and training. Thus prepared, the enterprise is able to conduct e-Commerce: "the commercial exchange of value (money, goods, services, or information) between an

enterprise and an external entity (an upstream supplier, a partner, or a down-stream customer) over a universal, ubiquitous electronic medium."

In order to appreciate the relevance of e-Business and its potential to impact on business and development, it is important to understand that e-Commerce and e-Business are more than just electronics and commerce/business added together. They represent an entirely new way of doing business (including that of government) over a medium that changes the very rules of doing that business. They are therefore far more about strategy and management than they are about technology.

E-Business is taken as the extension of business on to the Internet; the re-engineering of business processes for digitizing of the transactions; the restructuring of the frameworks, both private and public to carry out the transactions seamlessly; and the development of the capacity in society and enterprises for this.

3.4: e-Business and Countries

The information and communication technologies (ICTs) in general and e-Business in particular can bring very important benefits and opportunities for enterprises, and as a matter of fact for whole economies, in the world. If this premise be true, this would imply that there is some correlation between Internet usage and development.

The rate of adoption of e-Business by enterprises in developing countries is therefore crucial, if the benefits of the new digital economy are to be spread widely round the globe.

At a global level the variations of adaptation and success with e-Commerce and e-Business is leading to the conclusion that within the category of 'developing country' itself, new gradations are emerging. Where barriers are not in place and e-Commerce actively encouraged the new technologies of Information and Communication (ICTs), can become an integral part of the daily operations of even very small enterprises and the new emerging business models. The benefits of ICTs and e-Commerce can indeed be made available to large numbers of resource-poor people globally in developing countries. E-Business and the Internet if correctly utilised for development can be major instruments to ensuring future sustainable economic growth.

Self Assessment Exercise

What is e-commerce?

3.5: Impact of e-Commerce on the economies and Societies

The deep impact of electronic commerce on the economies and societies will in time improve economic efficiency, competitiveness and profitability and therefore result in the development of the information society. Within such an environment enterprises can benefit by:

- a) increasing internal organisational and management efficiency;
- b) increasing transaction efficiency and reducing transaction costs for both suppliers and buyers;
- c) extending market reach of suppliers and increasing choice for both suppliers and consumers;
- d) providing accurate information to improve service delivery such as in health and other social service provisioning or the providing of information to consumers/citizens.

E-Business and the new emerging digital technologies and services can be real tools for development and help improve the livelihood of millions across the globe, by linking up remote regions and bringing together scientists, administrators, health professionals, managers and people into projects and programmes to promote economic and social development. While success with e-Commerce leads to growth for an economy, utilisation of the resources and power of e-Commerce and ICT can be utilised for addressing the basic issues of poverty reduction, healthcare, universal education and good governance.

3.6: Obstacles to e-Business/e-Commerce

There is however no simple strategy or solution as the situation is both many-sided and changing rapidly. The Internet and e-Commerce impact at different levels and therefore must be understood at diverse dimension. They are technologically information intensive and operate simultaneously at both the micro-economic (enterprise) level as well as the macro-economic (societal/national) level. They are resulting in new organizational forms that require a completely new organizational culture and new skills to both operate and design functions. All of these mandate a new perspective and approach to policy planning and strategy, especially in developing countries where the development of electronic transactions on the Internet are still in their infancy.

As an example, e-Commerce is making it easier for artisans, musicians and other artists in developing countries to access business-to-consumer world markets, cutting out multiple layers of middlemen in the process. The evidence of real benefits in such cases is still scattered and anecdotal, but the trends are clear. Yet daunting obstacles remain. Internet entrepreneurs can take advantage of network benefits only when enough prospective customers and suppliers are online. In addition, the lack of local content does retard the growth of the local user base. Also,

access costs are a serious deterrent to wider adoption. Studies show that the most important use of the Internet in developing countries is limited to e-mail services - rather than World Wide Web services - which require minimal time online.

e-Business is a complicated endeavour. Particularly to implement it for a region which includes various countries and territories and a great number of variables. The products to be sold usually belong to different manufacturers. These manufacturers may not have the necessary technology to receive the orders from customers and even if they have it their countries mailing and delivery system may not be reliable enough to process the orders in the estimated time of five (5) to six (6) weeks required by United States laws. Also, commercializing products electronically entails on-line credit card verification, graphic displays of the products and the capacity to generate mail orders and delivery. These new types of commercialisation open a Pandora's box of problems. Some of these problems to be addressed are:

The responsibility of warehousing and distribution, billing and payment processes, readiness on the part of the participating companies, etc. All this requires elaborate infrastructure and organisation which is still nowhere near the norm in most of the developing countries.

3.7: The 'digital divide'

There already exists a huge development gap between the developed and the developing world. Many development specialists feel that this is further being widened in the new digital economy. This is a serious issue, in view of the potential importance of the Internet for all spheres of life everywhere. This is a serious issue, in view of the potential importance of the Internet for all spheres of life everywhere, and because of the trend for the facility to be increasingly dominated by a few countries and private companies.

E-Commerce today remains mostly a US and Western based activity, though connectivity has significantly improved in many parts of the developing world – for example, every capital city in South America and Africa enjoys some level of Internet access today. However, there are still significant disparities in the level of Internet penetration across regions, which can have profound implications for an individual country's ability to participate in the global electronic market place.

3.8: The new economy model

All businesses associated with communications, information technology and e- Commerce are encompassed in what is commonly called the "new economy". The implications of this model of economic growth are

a matter of heated debate. Recent reversals in the so-far rising stock prices of technological companies as opposed to the declining values of the old economy businesses prove that this model not only holds promise (at least for the west) for ushering in prosperity but could also bring about a period of uncharted and messy change. Similarly, there are several views amongst economists about the fundamentals of the new economy model and how it relates to established doctrines of economic theory. Just as many old theories are being challenged, new developments are raising doubts about the sustainability of the new economy itself. Further empirical evidence is required for either view. What is clear is that the new “digital economy” will have a major impact on the global economy. National markets, especially in developing countries, may not yet be feeling the changes but the waves of the new global competitive environment is likely to effect enterprises throughout the world. The impact of e-Business for developing countries today is mostly in the international trade sector. But e-Commerce could soon have a vital impact on the services sector, where the potential for offering digitized service and transactions is very high.

According to some commentators several ICT firms welcome this shakeout in the market as they believe that it would be better for e-Business and the new economy as only the better firms will survive. This scenario is being played out in developing countries too and their governments have to consider the question of norms and rules for venture capital as well as for the stock exchanges.

Many experts attribute this to, on the one hand, the power consumers have found online and on the other, the efficiencies that businesses have found in digitizing their processes. These factors will continue to push e-Business forward regardless of what happens to the world economy in the near future.

3.9 Complexities of e-Commerce/e-Business transactions

“The Internet as a means of trade raises several complex issues. The following example helps elaborate the complexities in the types of transactions that are now possible with e-Commerce in relation to a common Anti-virus software programme:

1. A consumer could just buy it at a store near by, packaged in a CD or DVD. (This could be an imported product).
2. The manufacturer could send it over the Internet to local or cross-border distributors who then copy the programme on to CDs and sell them at their store to local consumers.
3. A consumer could order it over the Internet from a domestic or cross-border manufacturer and it would be mailed to him.

4. A consumer could order it over the Internet and it could be sent in digitized format directly to the computer of the consumer.
5. A consumer while ordering the software could choose an option whereby the programme is regularly updated through the Internet by the supplier.
6. Another option could be that it would be updated or modified based on interactive and customised requirements of the buyer.
7. A further possibility could be that the consumer makes an illegal copy of the software and either just passes it on to a friend, or in fact sells it further, either in the form of a CD or just as an attachment to an e-mail, for example.

Of the above mentioned seven different variations on the transaction only the first conforms to traditional processes of buying and selling and is fully covered by existing trade agreements. The balance five are all Internet or e-commerce enabled transactions. In fact even in the first, a consumer may have checked out prices, store locations etc. via the Internet before going to a regular store to purchase the software programme. Some of the complexities are the following:

Since e-Commerce and e-Business are still developing. All its transactions cannot be limited and classified by definitions of goods or services. They may be either or both or even something more. Developing countries therefore need to be prepared to take up new negotiations in the area of e-Commerce and then decide on the matter of commitments and principles.

3.10: Intellectual property rights and e-Commerce

In this area there are two areas implicit.

The first concerns the management of the Internet addresses, which essentially means exercising whatever marginal control there is over the medium.

The second is that concerning the protection of IP rights over the Internet. As the Internet is the platform for global e-Commerce, the administration of the “domain names” system is important from both a policy and procedural perspective.

The principal players in this are:

the Internet Corporation for Assigned Names and Numbers (ICANN), and

the Domain Name Supporting Organisation (DNSO) that take the few central decisions concerning protocol or for allocating Internet addresses or domain names. These are important issues with the latter having very strong commercial implications for the Trademarks issue. Unfortunately developing countries are not represented on these bodies.

E-Commerce entails the buying and selling of products and services at a distance. It is therefore becoming increasingly important to rely on the

reputation attached to trademarks and other distinctive signs. Not only is the question of their protection an issue, but conflicts arise between them and Internet 'domain names', which, though designed to serve as addresses, have acquired a further significance as business identifiers. Several addresses containing the trademark names of established companies have been registered as domain names thus leading to disputes over their usage, as well as to allegations of what is referred to as 'cyber-squatting'.

To protect IPRs requires that governments and the private sector develop and implement an appropriate mix of regulatory, contractual and technological measures, and ensure adequate public awareness of the role of copyright and related rights in the information society. This would on the one hand provide protection to local industries in global markets and on the other, spur investment and growth by providing a safe and legal environment.

3.11: e-Business Readiness Check:

To engage in e-everything we should ask ourselves the following pertinent questions.

Connectivity: Are networks easy and affordable to access and to use?

- Availability of communication services, access centres and networked computers
- Existence of effective competition among communication and information services providers.
 - Affordability and reliability of network access, including the cost of service.
 - Reliability of electrical supply for business-critical computer operations

E-Leadership: Is E-Readiness a priority?

- Priority given by government to promoting the development of an e-society on a national level.
 - Extent of demonstrated progress on e-government.
- The ease of importing and exporting goods and of transporting them within a country.
 - Quality of partnerships between industry and government to improve E-Readiness.
 - Level of effort to promote access for all citizens.

Security: Can the processing and storage of networked information be trusted?

- Strength of legal protections and progress in protecting intellectual property rights.
 - Extent of efforts to protect privacy.

- Strength and effectiveness of the legal framework to address and prosecute computer crimes, authorize digital signatures, and enable public key infrastructures.

Human Capital: Are the right people available to support e-business?

- Quality of and participation levels in the education system, with an emphasis on efforts to create and support a knowledge-based society.
 - Culture of local creativity and information sharing within the society.
 - Skills and efficiency of the workforce.

E-Business Climate – How easy is it to do e-business today?

- Transparency and predictability of regulatory implementation, openness of government, rule of law, and general business risk.
 - Openness to participation by foreign investors in ICT businesses.
 - Ability of the financial system to support electronic transactions.

4.0 Summary

This unit has tried to throw light on e-Commerce and e-Business through the typical concern of e-Commerce. The possible complexities in the transactions and prerequisites for e-Business with basic questions for e-readiness.

5.0 Conclusion

The prerequisites of e-Business opens a door for the next unit which is the techniques in e-business.

6.0 Tutor-Marked Assignments

- 1a. Differentiate e-Business from e-Commerce?
- b. What the impact of e-Commerce on the economies and societies?
- c. What are the obstacles to e-Business in the developing countries?
2. Discuss the complexities of e-Commerce/e-Business transactions.

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UNIT 3: Exploring e-Business Technologies

Table of Content

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 The Technologies of e-Business
 - 3.1.1 Moore' Law
 - 3.1.2 Bandwidth Scaling Law
 - 3.1.3 Metcalf's Law
 - 3.2 Exponential Growth
 - 3.3 Software Technologies
 - 3.3.1 Software Versus Services
 - 3.3.2 Databases
- 4.0 Summary

- 5.0 Conclusion
- 6.0 Tutor-Marked Assignments
- 7.0 References/Further Reading

1.0 Introduction

e-Business is already changing the way society works. We are seeing a shift from a vision to something increasingly pervasive. For example, consumers expect to find a Web site for a particular organization. Otherwise, they think the company is not legitimate. A customer or a supplier can refuse to do business with you because you are not “connected”. At first, it was just by e-mail, but now this includes self-service Web sites and online ordering.

2.0 Objectives

At the end of the unit you will be able to:
Understand the technologies of e-Business
Identify the software’s part in e-Business
Discuss wireless standards

3.0 Main Content

3.1 The Technologies of e-Business

Computing, communication, and cognition are driving the fundamental changes in the way we live, love, labor, and learn. The advances in computing are obvious to most, but the growth of communications technologies has probably been more dramatic. The e-Business revolution is fundamentally about human interactions. Psychology and the cognitive sciences have illuminated the ways that people interact and learn together.

How does a business learn about its customers?

How does a consumer learn about new products?

How does a manufacturer or developer support customers?

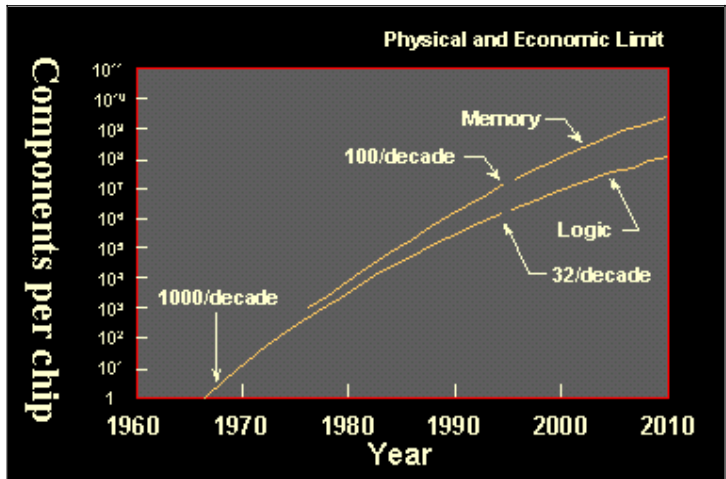
These are all timeless questions, but technology has changed all the answers and will continue to do so for the next decade or more. What can we know with great certainty about the future of technology and what can we only guess at? There have been a number of efforts at projecting the future.

To understand the technological changes that underlie the opportunities in e-Business, one must include a backward look at the technologies that have brought us to this point and then take a prospective look at the basic sciences that will create new technologies that will continue to drive further change. Some things can be predicted to be as relentless as death and taxes. Others are as unpredictable as the weather.

Understanding which is which and developing strategies for dealing with relentless change and uncertain results is a key component of e-Business and the management of information technology.

3.1.1: Moore’s Law

Gordon Moore first observed that computer power was doubling every two years. That was later revised to 18 months. This means that since

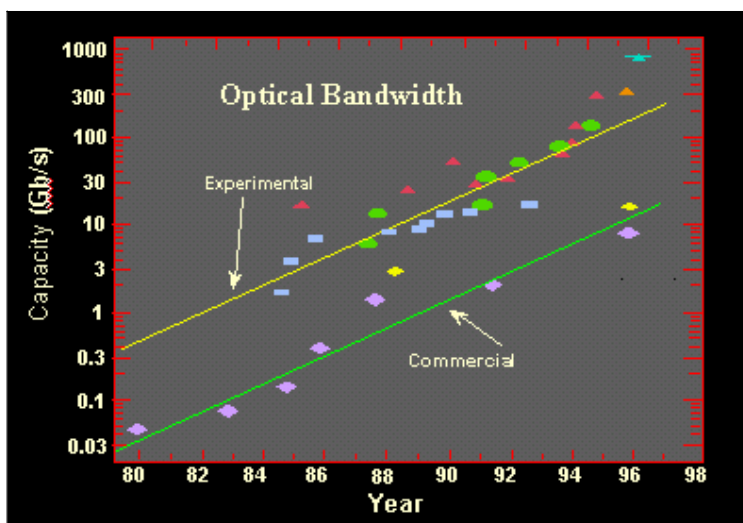


the invention of the microprocessor, the performance of a microprocessor has been doubling every eighteen months. This is directly related to the number

of components that can be fit on a chip and is thus related to the minimum size of each component. Advances in basic physics and engineering have kept this law accurate for over five decades! The basic physics is in place to keep this going for another few doubling periods at least. Moore's Law is the simplified statement that computing power is doubling every 18 months. An alternate perspective states that the cost of equivalent computing power halves every 18 months. Either way, it creates a real challenge for everyone to keep up. On the other hand, it provides an extremely reliable roadmap to what technology platforms will be available in the future. This and the relentless doubling of bandwidth are the two most predictable events driving information management.

How long can this last? Gordon Moore thinks that it might begin to break down about 2017, but other observers are confident that physicists and engineers can come up with the new devices that can extend Moore’s Law for several more decades.

3.1.2: Bandwidth Scaling Law



For the last two decades, the bandwidth of

communication on optical fibers is increasing exponentially just as is the power of the microprocessor. Examination of the graph of optical bandwidth reveals two numbers of intense interest. First the optical bandwidth for commercial networks has doubled over 9 times in the eighteen year period from 1979 to 1997. This indicates a **doubling time of approximately two years**. Notice also that the displacement between the best bandwidth in the laboratory and the best bandwidth in commercial deployment has a delay of just about **6 years**. This means that commercial deployment of bandwidth will surely continue to double for the next six years leading to an overall increase in bandwidth of 8 times! Those who work in optical networking are confident that improvements in the physics and engineering will continue to improve the best laboratory bandwidth over this period. Thus we can say with a high degree of confidence that the bandwidth doubling will continue of the foreseeable future! This relentless march of bandwidth led George Gilder to declare that the future was a future of a "[BandwidthofPlenty](#)."

3.1.3: Metcalf's Law

Metcalf's Law tells us that the value of a network is proportional to the square of the number of persons connected to that network. Although this can be given a mathematical basis, it is really more of an empirical law that must be applied in a context where all other things are equal. The mathematical basis comes from the number of mathematical interactions between **n** persons. The **n** people would have **n-1** other persons that they can interact with. That is everyone but himself or herself! The total number of such interactions is then given by:

$$\text{Interactions} = n(n-1) = n^2 - n$$

For large values of **n**, **n²** is so much larger than **n** that the **n** is just ignored.

Investors use Metcalf's Law as one way to assign value to a companies network. It is not the whole story, because it matters what people do once they are on that network. How long do they stay there? Some term this "stickiness." If people stay on a network longer then the network is said to be "sticky". The reasoning is that the longer someone stays on a network, the more probable it is that they will purchase something and return to purchase something else. Even more important is what the company's business model is for extracting revenue from the network.

Metcalf's Law is said to lead to "network economics" and is sometimes described by economists as "network externalities."

In the early stages of the e-Business Tsunami, companies often overlooked the need to develop a business model for what they might do with their network. In the rush to establish a competitive advantage, companies "bought" customers with free goods and services. Netscape

pioneered this by giving away the browser. Later entrants tried giving away PC's and even Internet connections.

There is no denying the advantage those companies like America On-line (AOL), Amazon.com, Yahoo, and eBay have established in their networks of users, but they have only been able to convert that network advantage into a business advantage by finding a business model that leads to revenues and earnings.

These large networks often lead to Communities. Although community development is closely related to Metcalf's Law, Reed has pointed out that Metcalf's law really relates to one-to-one interactions among n persons. He has proposed "Reed's Law" as an alternative. If one calculates the number of communities that can be formed from n persons, then it turns out that this is proportional to $n!$ (n factorial- or $n \times n-1 \times n-2 \times n-3 \dots 1$). This is an even more powerful scaling factor than Metcalf's law. Community development has been a very important part of the Internet. It is also a key component of internet based marketing scenarios.

3.2: Exponential Growth

The mathematics of e-Commerce is largely the mathematics of exponential growth. As we look at Moore's Law, the Bandwidth Scaling Law, the growth of the market capitalization of technology based companies, the growth of e-Commerce revenues, and so many other variables, we see examples of exponential growth. Every exponential growth process has a doubling time. For Moore's Law that is 18 months, for Bandwidth it has been about 12 months. For venture capital the doubling is about 5 years. In for the market capitalization of technology-based companies, the doubling period is slightly over two years.

In mathematics, exponential growth processes go on indefinitely with values driving toward infinity. In the physical world, exponential growth processes always end. They can never continue indefinitely since they run out of resources, people, potential markets, interest, energy, or something else. There are three general ways that exponential processes can end:

1. Saturation
2. Peaking
3. Catastrophic Collapse

Saturation

When exponential processes end in saturation, the curve begins to flatten and then levels off at some higher level.

Peaking

When peaking occurs, the curve first flattens and then begins to fall. Catastrophic collapse occurs when the function suddenly (discontinuously) drops to some undefined value rather than moving smoothly through a curve as in the other cases.

Real world processes are never as simple and clean as the mathematics used to describe them, but these three mathematical processes describe the general fate that awaits any exponential process. Exponential growth in any system will eventually saturate, peak, collapse, or a combination of these in sequence. The only thing that is sure is that exponential growth cannot continue indefinitely. It is not always easy to determine either when or how exponential growth ends. But it always does. That is one of the many characteristics that makes investing and business so interesting.

In the case of Moore's Law and the Bandwidth Law, considerable evidence points to the continuation of exponential growth for several more decades. It would be quite surprising if the exponential growth of Venture capital and the exponential growth of e-Commerce continued for that long a time. They will be expected to level or peak. In fact the exponential curves for venture capital and market capitalization have shown behaviors that look to a combination of peaking and collapse since 2000.

3.3: Software Technologies

Network technologies and the Internet were created in their earliest incarnations for national security reasons. There needed to be a robust way to move data from site to site that could not be disrupted by nuclear war. The first networks were quickly put to work by the scientists working in the national laboratories to exchange scientific information. It was not long until the use of the network spread to scientists outside the laboratories, first to those connected through Arpanet and then, with the support of the National Science Foundation, through the internet.

Understanding the physical and mathematical technologies that have enabled the platform for information technology is more straightforward than understanding the software technologies. Progress in software has always lagged progress in hardware and is characterized by more visible journeys down blind alleys and sudden shifts in approach.

Netscape had originally created its own approach to delivering interactivity within a browser, and after partnering with Sun dubbed the language JavaScript. Java and JavaScript had very different roots and different approaches, but at least the names sounded similar!

Microsoft both embraced Java and then began to co-opt Java into the Microsoft only environment. First Microsoft created Active-X components that were like Java in that they were downloaded from servers in live time and then ran on the client, but the Active-X components were Microsoft platform specific and could be written in a variety of Microsoft languages including the popular and easy to use

Visual Basic. Active-X operated in a much looser security architecture that made it both more dangerous and more powerful than Java. Next Microsoft added Microsoft specific extensions to Java that added very desirable functionality, but broke the “write once run anywhere” paradigm of Java. In the view of many persons, there were now two Java’s – Pure Java and Microsoft Java. This was simply too much for Sun who sued and won. The resulting uncertainty caused both by the Microsoft actions and by the legal wrangling hampered further adoption of Java.

As the Java war continued between Sun and Microsoft, a new front emerged. The World Wide Web Consortium worked on extensions to HTML to create an XML standard. Microsoft raced to embrace XML, in part as an alternative to Java. In the meantime, software development in C, C++, Visual Basic, and HTML continued to dominate. Microsoft eventually introduced C# as an alternative to Java.

The advent of the network based computing paradigm reactivated this old argument. How much computing should be done server side and how much computing should be done client side? Not surprisingly, suppliers of servers and enterprise wide systems liked the idea of “thin clients” accessing resources from powerful servers.

Enterprise planners however saw the advantages of potentially controlling costs and improving the return on investment in computing. They liked the creation of network tools that could be centrally purchased, centrally managed, and centrally supported.

Today Java is often used on the server to create interactivity through delivering HTML pages to the client that the client machine simply renders. Microsoft has adapted Visual Basic to do the same kinds of things in the Microsoft environment. They have also created a server centric solution called “Active Server Pages” ([ASP](#)) that is relatively easy to implement server side and is closely integrated with other Microsoft applications.

3.3.1: Software versus Services

Efforts to reconcile issues of server side versus user side power eventually led to two different architectures for web based computing. One architecture was based upon Java and was supported by Sun, IBM, Oracle, and many other major enterprises. Predictably, Microsoft went its own way and created the .Net (pronounced “dot net”) architecture. Each of these architectures was designed to enable powerful web services. Many organizations felt that computing was moving into a new era in which organizations would “rent” software rather than buying it. In this model, users would pay for the use of certain software applications that were hosted, maintained, and supported by the supplier. Instead of installing new software on each computer, enterprises could simply purchase a subscription that would entitle the enterprise to access to software services provided over the network. The actually

technologies that would do that could be created from combinations of the tools discussed above including: databases, JavaScript, Java, and the Microsoft .NET tools. A company that provided such applications would logically be called an "Application Service Provider" or ASP. The services provided are now often referred to as "web services." The Gartner group defines **Web services** as "*... a custom end-to-end application that interoperates with other commercial and custom software through a family of XML interfaces (like SOAP, UDDI and WSDL) to perform useful business functions.*" ASP has taken on two meanings that are quite different. The other ASP is a technology that comes from Microsoft called "Active Server Pages" that will be discussed later. This latter term refers to a server side technology that receives requests from a user's browser and then actively creates customized pages, often from a database, for the user. It is now largely subsumed in the .NET architecture.

3.3.2: Databases

Today's modern applications are dependent upon connections to massive databases and to the tools that can be used to link the data in those databases to web pages delivered to the consumer or user. True end-to-end e-Business is absolutely dependent upon such links and upon the ability of different databases to exchange information smoothly and rapidly.

The database industry is dominated by Oracle (31.1%), IBM (29.9%), and Microsoft (13.1%)(1999 figures), and each is vying with the others for domination of this crucial technology.

XML

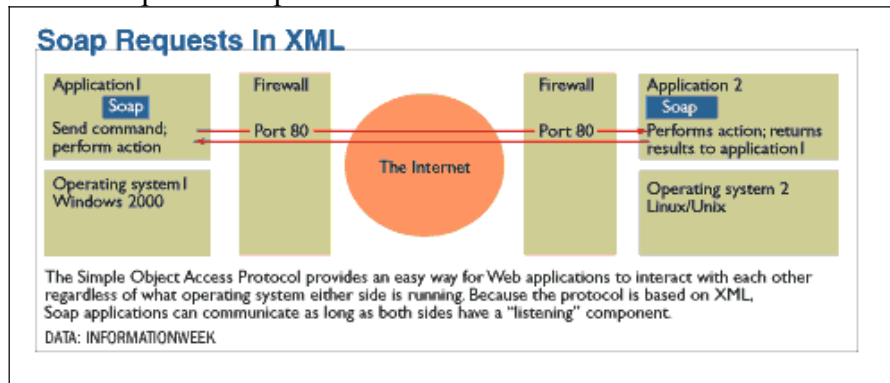
Although XML is related to HTML, it is targeted at a different problem. That problem is enabling differing applications to recognize data embedded in documents even though that data may have different formats in the different applications. XML, which is short for **eXtensible Markup Language**, allows the use of extended tags that can tag content and identify it as specific kinds of data. If the data is tagged properly and the applications know how to read the tags, then different kinds of applications can exchange data seamlessly. For example, a particular document may contain names and addresses of customers, but may also contain many other kinds of information. If the documents contain tags like <FirstName>, <FamilyName>, <City>, <State> or <HomePhone> then applications reading the documents can identify and extract the key pieces of information and use that information to populate a database or display data in a specific format.

Using XML enables this exchange, but it requires the development of a standardized set of tags that every one agrees upon. These standardized sets of tags are often referred to as "schemas," and without them there is no guarantee that different applications will recognize one another's tags. As so often happens when standards are required, there are now competing standards developing that will be largely incompatible with

one another. Compatibility may be re-introduced through the development of “translators” or mappings between competing standards, but that is really putting a patch on a fundamentally flawed approach. For XML to be as successful as it might be, there will have to be either industry consortia that can agree on standards for tagging data or there will have to be a few very powerful players who dictate standards to others in the industry, and who have the power to make those standards stick as defacto standards.

Soap

The Simple Object Access protocol (SOAP) is a way of using XML and http to contact objects on unlike systems and ask them to work together to solve a particular problem.



There are other protocols for interaction amongst unlike systems including COM, DCOM, and CORBA but SOAP is easier to implement across firewalls and may be better suited for lightweight applications. Soap encapsulates data and instructions into an XML described envelope using standardized encoding rules and RPC conventions, and then transmits that envelope for system to system through http. SOAP is supported by a collection of companies that numbers IBM and Microsoft among the leaders.

JavaScript

JavaScript was designed a scripting language to be used to allow interactivity within a browser. It was far less powerful than Java, but it was also far easier to use and implement. JavaScript's could be written with simple text editors and were simply included as part of the HTML code. There was no need to compile to intermediate code, then download, and interpret that code at run time.

ASP: Active Server Pages

Another way to personalize the web browsers experience is to provide a customized page for each browser. This requires that information be obtained from the user either through reading a cookie, tracking responses, or through asking for information. Then each page can be constructed especially for the user and delivered to that user alone. Active Server Page technology enables this practice and is a part of most

commercial sites. Active server pages help allow the “mass customization” that can be an important part of the Internet experience. Each user sees a page that was designed for her and her alone.

Cookies

One of the most controversial and debated technologies of e-Business is the Cookie. The Cookie was invented by Netscape Communications to solve a problem that appeared to be a serious limitation of the World Wide Web and browsers that used HTTP, the Hypertext Transfer Protocol. HTTP was originally designed to be a “stateless” protocol.” That means that each transaction with a server or servers was independent. A server could not determine who you were, whether you had been there before, or what you had done previously. For e-Commerce, this is a severe limitation. Web retailers really wanted to have a way of preserving information about transactions from particular machines. Netscape invented and patented the cookie as a way to store such information on the users own computer.

Application Service Providers

Application service providers provide application to users over the network. The concept is to rent an application rather than to buy it. Be careful here since ASP can refer either to Active Server Pages or Application service providers and they are very different things. It is only through the relentless advance of Moore’s Law and the Bandwidth law that we have arrived at a point where it might indeed be practical to download applications just in time as they are needed. This requires reliable network protocols, available bandwidth, and suitable technologies such as Java and XML to allow this to happen. Many think that the future of applications is renting rather than buying. One could look at this as the end of the old cycle of buy and upgrade, upgrade, upgrade or as the beginning of the era of continuous upgrades.

Connecting to the Net

Getting connected to the net offers many alternatives today. Among these are:

- POTS -Plain Old Telephone Service (14.4, 28.8, 56K ->)

- ISDN 64 or 128 kbs

- xDSL typically up to 1.5 Mbs

- Cable Modems (Roadrunner etc.) typically up to 1.5 Mbs

- Satellite (One way: Direct PC; Two way: Gilat to Home) and

- Wireless 802.11(b) is 11 Mbs and cellular is presently restricted to quite slow rates.

POTS remains the most likely connection from homes, but offers only low bandwidth dial up connections. Those that want better bandwidth or “always on” service usually turn to one of the other options.

Wireless

"In the next two to three years, there are going to be more wireless ports than wired ports in the world. Cell phones are becoming an office with all the features of an office available around the world, and we are seeing the beginnings of this in Nigeria."

The future of e-Business is undoubtedly wireless. Which protocol, which operating system, and which end user device are all open questions. Many think that one only has to visit Japan and hang out with the teenagers to discover the future of "always on" wireless connectivity. The DoCoMo which stands for **Do Communications Mobile** system has teenagers constantly chatting, paging, exchanging, and emailing in a system that is live as long as the battery is charged! Wireless application protocol, hopes to create a formal standard that will allow wireless access across a variety of cell phones and manufacturers, but the Palm Pilot has already gone ahead and introduced wireless access with their own system.

The future is clearly cellular wireless

The leaders in cellular wireless development are in Europe and Asia. Worse yet, the standards that have been most widely adopted in the United States are not those that the bulk of the world has chosen. Europe and many other areas have chosen an implementation of CDMA (Code Division Multiple Access) called GSM, that is not widely found in the United States.

The 802.11b wireless protocol (WiFi) has become something of a fad among users in the United States. It allows data transfer speeds of 11Mbps. It has become widespread as it is both cheap and reliable. Since WiFi requires access points connected to a wire network and only works over distance of the order of 9000cm, it is perfect for home wireless networks and small offices. WiFi is beloved by home users and reviled by enterprise IT administrators since it's weak security model and default wide open conditions can allow unauthorized user to access the network. None of this concern over security, much of which is overwrought, has dampened the enthusiasm of users. In fact one can download software such as NetStumbler, which will allow one to seek out and connect to networks that are left open for users. Perhaps the motivation is similar to open source advocates who believe that software should be free. Wireless advocates often feel that bandwidth should be free. WiFi is also made available by many hotels and even Starbucks, but they manage to get a toll collector on this information highway. Groups of wireless advocates have created organizations such as the "WARWalkers" who move through neighborhoods and map areas of wireless coverage. Some WARWalkers in cities have even begun to mark wireless access points in chalk on buildings and sidewalk. These "WARChalkers" allow the desperate WiFi user to find places that they can get connected.

There are other protocols for wireless use such as 802.11a and 802.11g that provide even more bandwidth. The latter standard (g) is beginning to catch on in the United States since it operates in the same 2.4 GHz band and often provides compatibility with the (b) standard. The (a) standard has not attracted such a large following since it operates in different band and used quite different technologies. The actual technical details of the standards are as follows:

802.11 -- applies to wireless [LANs](#) and provides 1 or 2 Mbps transmission in the 2.4 GHz band using either [frequencyhoppingspread spectrum](#) (FHSS) or [directsequencespreadspectrum](#) (DSSS).

802.11a -- an extension to 802.11 that applies to wireless LANs and provides up to 54 Mbps in the 5GHz band. 802.11a uses an [orthogonal frequency division multiplexing](#) encoding scheme rather than FHSS or DSSS.

802.11b (also referred to as *802.11 High Rate* or [Wi-Fi](#)) -- an extension to 802.11 that applies to wireless LANs and provides 11 Mbps transmission (with a fallback to 5.5, 2 and 1 Mbps) in the 2.4 GHz band. 802.11b uses only DSSS. 802.11b was a 1999 ratification to the original 802.11 standard, allowing wireless functionality comparable to Ethernet.

802.11g -- applies to wireless LANs and provides 20+ Mbps in the 2.4 GHz band.

The Bluetooth standard is yet another wireless protocol that is designed to allow devices to communicate on more of a peer to peer basis. Unfortunately it operates in the same band as the 802.11(b) and could lead to interference. It is a slower and shorter range standard that focuses more on communication among PDA or cell phone devices.

4.0 Summary

Technologies of e-Business need to be properly understood in order to effectively apply and appreciate e-Business. Issues like e-Business and management of it, laws relating to growth, software technologies, databases, personalizing web browsers came to fore.

5.0 Conclusion

This unit examined the various technologies in e-Business : databases, languages etc. In the next unit we will be looking at the electronic impact of e-Business and e-Business Technology.

6.0 Teacher Marked Assignment

1. Identify the part played by software in the e-Business.
2. List and explain the known wireless standards.

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UNIT 4: ELECTRONICS IMPACT AND TECHNOLOGY

Table of Content

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Growth, Integration and Sophistication of IT and Communication
 - 3.1.1 Pervasive Computing
 - 3.1.2 Lessons from US Census Bureau
 - 3.1.3 Common Features e-Business and e-Commerce
 - 3.1.3.1 e-Business Infrastructure
 - 3.1.3.2 Computer Mediated Network
 - 3.2 The Players of e-Business
 - 3.3 Infrastructure
 - 3.3.1 Web as Infrastructure
 - 3.3.2 Web Technology
 - 3.4 A distinct feature of an e-Business System
 - 3.5 The prominent Channel Management Strategies used in running e-Business
 - 3.6 e-Business fulfillment from supply chains to supply webs
 - 3.7 Business-to-Business e-Commerce
 - 3.8 B2B e-Commerce Areas of Impact
 - 3.9 e-Business Valuation
 - 3.10 Ubiquitous Commerce
 - 3.11 Open Enterprise Interoperable Infrastructure and Shareable e-Process
 - 3.11.1 Open Enterprise
 - 3.11.2 Interoperable Infrastructure
 - 3.11.3 Shareable e-Processes
 - 3.12 Entrepreneurship in e-Business
 - 3.12.1 ILINC LearnLinc Corporation
 - 3.12.2 Yahoo
 - 3.13 The Transition to e-business
 - 3.13.1 Internet: Tremendous Growth
 - 3.13.2 New Business Models
 - 3.13.3 Business Development
- 4.0 Summary
- 5.0 Conclusion
- 6.0 Tutor-Marked Assignments
- 7.0 References/Further Reading

1.0 Introduction

The era of e-commerce has arrived. Selling and purchasing by both consumers and businesses will change form, and demand will be created for new products and services and how they are delivered. It's time to start thinking of the environmental impact, and how unlikely our present regulatory system will be able to address it. e-Business is a term used to

describe businesses run on the Internet, or utilizing Internet technologies to improve the productivity or profitability of a business. In a more general sense, the term may be used to describe any form of electronic business — that is to say, any business which utilizes a [computer](#). This usage is somewhat archaic, however, and in most contexts e-Business refers exclusively to Internet businesses. The rise of e-Business is a story of entrepreneurship. Established enterprises have had important roles and may, in the end, come to dominate the landscape of e-Business, but without entrepreneurship, e-Business would not have developed nearly as dramatically. During the last decade of the 20th century, the rules of thumb of entrepreneurship all changed. Venture capital availability exploded. Companies were founded at record rates. Established companies began to grow through acquisition of the newly formed companies at unheard of valuations. Newly founded companies started with more financial backing, grew at more rapid rates, focused on top line (revenue) growth rather than bottom line (earnings), and went public earlier than ever before in history.

2.0 Objectives

At the end of the unit you should be able to:

Understand the growth, integration and sophistication of IT and communication

Identify the e-Business players

Discuss the common features of e-Business technology

Determine the e-Business Infrastructure

Understands the distinct feature of an e-Business

Discuss channel management strategies used in running e-Business State the steps in creating a new venture:

Discuss internet growth and models for developing successful e-Business

3.0 Main Content

3.1 The Growth, Integration and Sophistication of IT and Communication

3.1.1 Pervasive Computing

This is reality, no longer just a vision. It is the idea of putting powerful computer chips and functions into everyday things such as cars or household appliances. As the Internet becomes increasingly common, the technology and commerce, and social uses of the technology, are racing forward. Huge investments are being made to support the increasing Web traffic as current Internet resources are being stretched to the limit. This will make entirely new ways of using the Internet possible. A good example is the cinema industry. Today, you can check out a movie through the Web.

The growth, integration, and sophistication of information technology and communications are changing our society and economy. Consumers now routinely use computer networks to identify sellers, evaluate products and services, compare prices, and exert market leverage. Businesses use networks even more extensively to conduct and re-engineer production processes, streamline procurement processes, reach new customers, and manage internal operations. While the burgeoning use of electronic devices in our economy is widely acknowledged and discussed, it remained largely undefined and unrecognized in official economic statistics.

3.1.2 Lessons from US Census Bureau

The Census Bureau initiated an aggressive program in 2000 to begin filling data gap through Census Bureau measurement framework, definitions, strategy, data collection initiatives, initial results, and future plans. The fact that electronic business (e-Business) is in its infancy, yet growing and changing rapidly, poses special problems.

It is useful to think of the digital economy as having three primary components—supporting infrastructures, electronic business processes (how business is conducted), and electronic commerce transactions (selling of goods and services online

3.1.3 Common Features e-Business and e-Commerce

A common feature of both electronic business processes and electronic commerce transactions is reliance on the use of computer-mediated networks. The reliance on the use of computer networks, and the benefits they can provide, is the “bottom line” difference between electronic and other kinds of business.

3.1.3.1 e-Business infrastructure

E-Business infrastructure is the share of total economic infrastructure used to support e-Business processes and conduct electronic commerce. It includes hardware, software, telecommunication networks, support services, and human capital used in electronic business and commerce. Examples of e-Business infrastructure are:

- computers, routers, and other hardware,
- satellite, wire, and optical communications and network channels,
- system and applications software,
- support services, such as web site development and hosting, consulting, electronic payment, and certification services, and
- human capital, such as programmers.

Business organizations include any for-profit or nonprofit entity. Major e-Business process categories include:

- online purchasing,
- selling,
- production management,

logistics, as well as internal communication and support services.

Online Purchasing

online purchasing includes the following online processes:

- access to vendors' products/catalogs,
- ordering from vendors,
- electronic payment to vendors,
- vendor managed inventory,
- use of electronic marketplaces and online auctions.

Internal processes include:

- email capabilities,
- automated employee services,
- training,
- information sharing,
- video conferencing,
- recruiting, and
- telecommuting.

Completion of e-Commerce Transaction

An e-commerce transaction is “completed” when agreement is reached between the buyer and seller online to transfer the ownership or rights to use goods or services. This online agreement is the trigger for determining an e-commerce transaction, not the payment.

While transactions involve buyers and sellers, we generally will measure e-commerce from the seller’s perspective.

Examples of e-commerce transactions include:

- the sale of a book or CD over the Internet,
- an electronic marketplace selling parts to another business,
- a manufacturing plant selling electronic components to another plant within the company using the company's Intranet, and
- a manufacturer selling to a retailer over an EDI network.

3.1.3.2 Computer Mediated Network

Computer-mediated networks are electronically linked devices that communicate interactively over networks. A variety of electronic devices can be linked, example:

- computers,
- Internet-enabled cellular phones,
- personal digital assistants,
- WebTV, and
- telephones

Linked through interactive telephone systems. Such links generally involve minimal human intervention though increasingly e-Businesses

are providing the capability of “chatting” with a customer support representative.

Networks include:

the Internet,

intranet (internal network within an enterprises’ or organization’s firewall),

extranets (networks using Internet/intranet technology that permit businesses to securely share information with selected suppliers, paying customers, or other businesses),

Electronic Data Exchange (EDI - a proprietary electronic system used for exchanging business data over networks) networks, and telecommunication networks. Networks can be either open or closed.

Why should environmental policymakers pay any attention to something like electronic commerce? After all, environmental policy has worked rather well by focusing on manufacturing rather than services, on technology and regulation rather than information and knowledge, on the details of the law rather than the dynamics of systems

For environmental policymakers, the prospect of going to electronic commerce is bound to bring back memories of the “unitless office” or the long-awaited end to highway congestion due to telecommuting. Substituting electrons for materials and energy sounds good. However, electronic commerce is about more than simple material substitution. Anything that fundamentally affects the way business is transacted, and what is actually transacted, can have significant environmental implications. One can imagine buying a CD online and downloading it directly to a digital storage medium — no travel to the mall, no traffic congestion, no 10,000-square-foot store to heat or cool, no packaging to produce or dispose of. This strategy will work well in cases where products can be reduced to their information content, such as games, CDs, books, or software. E-commerce also favors what economists commonly call “search goods,” where the main barrier to their purchase is finding the right combination of price and other attributes, versus “experience goods,”

3.2 The Players of e-Business

Any identification of the players of e-Business must be selective and will change with time. We will identify a few key players that are intended to illustrate the diversity of approaches and include both new and long established companies, but with an emphasis on the newer companies that have pioneered the new business models.

Netscape

Netscape pioneered many of the actions that became hallmarks of the early e-Businesses. Among those were:

1. Going public early in the company's history prior to developing a history of revenues and earnings.
2. Focusing on growing the customer base rather than developing a revenue model.
3. Giving away the product to build a user base.
4. Using publicity and media hype to drive investor interest in the companies stock.
5. Using the highly valued stock as currency to acquire related businesses.

America On-Line (AOL)

AOL faced one of its largest challenges, how to adapt an on-line service that predated the Internet on to the Internet. Many thought that they were sure to fail. Instead they succeeded. The resulting growth did lead to huge problems with customer service and lots of bad press, but AOL eventually overcame the problems and went on to dominate its competition. One by one, CompuServe, Prodigy, and others succumbed to AOL's network dominance.

Yahoo

In the beginning it was simple and just for their own use, but it quickly gets out of hand. Although they begin with some simple Unix tools like Tcl/Tk and Perl scripts, they eventually add a good user interface. Their fame spreads through word of mouth. Later this is called "**viral marketing**," but no one really knows about marketing on the internet in 1994. Their fame continued to grow through out the rest of the year as they added functionality to the site.

There is some disagreement about how the name came about. Some say that Yahoo! is short for "**Yet Another Hierarchical Official Oracle**" but Filo and Yang claim it is because they are yahoos. Filo is from Louisiana where the term seems to be used more often.

As many entrepreneurial start-ups must do, Yahoo decided to bring in some experience to help grow the business.

Amazon.com

Amazon.com represents the quintessential e-Commerce company. It was one of the first to demonstrate the potential for "virtual" upstarts to upend the market leading "bricks and mortar" companies Amazon.com demonstrated the potential for why e-Commerce has such industry transforming potential and what the prospects are for the established market leaders.

Early caution flags were raised when the Gartner Group released a report criticizing the response of most industries to e-Business or e-Commerce and providing some cautionary tales.

Microsoft

The youngest of the Dinosaurs, Microsoft is learning to stop behavior and love the net. Will Microsoft.net provide the technologies for the next generation of e-Businesses? Will the justice department rain on

their parade and break them up damaging their plans? Or, will the world just rush on by moving in internet time and consigning Microsoft to the ranks of those that once were great like VisiCalc, Word Perfect, Lotus 123, Borland TurboPascal, Novell, and others who once dominated and then became bit players.

Self Assessment Exercise

Identify the main players of e-Business.

3.3 Infrastructure

An effective infrastructure is essential in order to coordinate various business units and processes into an e-Business. The enterprise information system supports supply-chain processes and process coordination within and between enterprises. In addition, the infrastructure also include:

- a global information network for supporting various electronic services such as brokerage and contracting, payment and banking, transaction processing,

- electronic access to external data, and

- electronic connections to customers that support such activities as filling orders and customer service.

Increasingly, the way to integrate these infrastructure components is to use the Web infrastructure supported by the Internet. Using the Web infrastructure intranets support intra-organizational business processes; extranets connect enterprises to their channel partners; and the Internet links the enterprises to their customers, other institutions and agencies.

3.3.1 Web as Infrastructure:

Using the Web as the infrastructure not only gives an enterprise a better means to coordinate with its supply-chain partners, but as important, it provides a new channel to reach out to customers. With the Web channel serving as the virtual storefront, there are opportunities for:

- product marketing,

- customer relationship management,

- and product branding.

In addition, a new kind of consumer process is emerging combining information aggregation, navigation, and interactive exchanges. On the one hand, it enables mass customization; on the other, the infrastructure supports quick response to market demands. Such a new channel requires new capabilities from the enterprise systems.

The Web provides a new paradigm for supporting enterprise and supply-chain processes. The paradigm is basically that of a highly flexible network with interoperable and sharable modules.

3.3.2 Web technology:

A Web technology that stands out as particularly useful for supporting the implementation of such a paradigm is component technology. The component approach can potentially better enable companies to integrate the supply chains and their processes among the supply-chain partners. They not only share product, manufacturing, and customer information with their partners; increasingly, they are letting the suppliers adopt parts of their business processes and systems to enhance coordination. Traditional enterprise systems put the emphasis on process integration. With this component-based approach, we will likely see more highly modularized companies, with each unit specialized in its core competency but always prepared to link up with business partners and their enterprise system. The component concept can be applied at several different levels:

The software and system level, where software objects and components have been used as the building blocks to make the functional components portable and inter-operable;

The process and application level, where business processes and applications, such as order fulfillment, customer services, etc., have been managed as separate modules, sometimes run at remote sites by applications service providers (ASPs);

The enterprise level, where business units can be quickly assembled to form virtual enterprises to explore a window of market opportunities.

The general trend these developments collectively point to is that in an e-Business, there will be increasing use of modularity and the component model to increase portability, inter-operability, and plug-and-play functionalities. The paradox is that the enterprise systems will be more integrated because of the greater use of modularized components.

3.4 A distinct feature of an e-Business system:

A distinct feature of e-Business is its capability to adapt and react, making the organization more agile. The trend for e-Business organizations to shift gradually from hierarchical to networked organizations is in line with the general trend of the economy. With the increasing use of information systems in most organizations, organizations are moving toward flatter and more adaptive structures, sometimes referred to as the market oriented networked organizations (MNOs). Instead of the command and control innate to traditional, hierarchical organizations, MNOs require more coordination; and the coordination is done in a way similar to the way goods are allocated in the marketplace, through decentralized pricing and exchanges. A supply-chain network is a type of MNO when the business units are assembled through market forces. On the other hand, a supply-chain network may be a type of hierarchical organization if it is totally vertically integrated. Electronic commerce is moving e-Businesses

toward the MNO model. Successfully implementing e-Business technology reduces transaction costs, and, therefore, the boundaries between markets and internal organizations are shrinking in favor of more market orientation.

Web technology overcomes problems of system incompatibility by encapsulating enterprise systems as object components made accessible by standardized interfaces, and by defining a protocol for transmitting documents between these components. This improves e-Business management by

reducing production costs through lower procurement and distribution costs,

better utilization of resources through enterprise specialization, and greater integration of supply-chain activities.

3.5 The prominent channel management strategies used in running e-Business

The prominent channel management strategies used in running e-Business are as follows:

Web enhances traditional channels. This is a commonly used cross-marketing model. Major TV networks, for instance, often use the Web to provide more detailed coverage than their traditional channels, thus enhancing their brand and their traditional channels.

Traditional channels promote the Web channel. All e-commerce companies use traditional media to promote their brands. Some traditional retailers put kiosks in their stores to provide Web access to assist any need for additional product search, or allow customers to return goods purchased online to local stores.

Web channel used to explore new markets. Because of the specific demographics of Web users, some companies use the Web to reach out to segments of the market they do not normally reach. The Web also enables an e-Business to reach out to consumers around the world.

Add new product lines only for the Web. Some companies use the Web to sell new products. This is especially effective when the business traditionally depends on powerful dealers/distributors and, therefore, selling the same products direct is not an immediate option. Also, major consumer goods companies have found the Web an effective channel to test market new product lines.

Integrate the Web and traditional channels. This is the “click and mortar” model, which is aiming at combining the best of traditional and Web channels. Pure dot-com companies need more traditional distribution channels to provide more efficient logistics and better customer services. Traditional channels need to add the Web channel to gain new capabilities for searching, navigation, and interactive, hyper-linked information retrievals.

Cannibalize traditional channels. Sometimes the new Web channel takes over the major share of the business. When this is inevitable in a given industry, a company might as well cannibalize the resources and focus its effort on the Web channel-- rather than been eaten up by competitors' aggressive Web channels. This happens in the industry where the Web will inevitably become the main channel.

Building alliances between traditional and Internet companies.

3.6. e-Business fulfillment: from supply chains to supply webs

In running an e-Business the Web-based supply chain model provides opportunities for several companies to work together and form a virtual enterprise. This is happening because, with the Web providing the links for sharing information among channel partners and the component technology providing the interoperability to integrate business processes, companies will use more outsourcing in their business models. As a result, companies will concentrate on their specialized products while working closely with the suppliers. The ability to manage supply-chain networks will, thus, determine the competitive advantage of a company. Supply-chain networks represent the collaboration among a group of business units working together to exploit the underlying adaptability, collective capabilities, and market opportunities. The Web helps facilitate coordination among the units, reducing inventories and cycle-times. The networked nature of the Web forms a natural infrastructure to support and transform e-Businesses. Because of the potential to manage e-Business organizations in these dynamic, innovative ways, the fulfillment process has become an important core competency in running any e-Business.

Self Assessment Exercise

1. Mention the distinct features of an e-Business system.
2. What are the prominent channel management strategies used in running e-Business?

3.7 Business-to-Business e-Commerce

The Web provides an e-Business with greater opportunities to interact with the market place in managing its supply chain. As a result, there is an increasing need to shift supply-chain activities to interact more with B2B intermediaries, markets, and exchanges. This emerging focus of supply-chain management on B2B e-commerce provides an important link for an e-Business to link with other e-Businesses. Moreover, conducting B2B e-commerce over the Web has made e-Business better connected in the global network that matches sellers and buyers.

A complete e-Business framework must enforce integration with:

B2B transactions,
channel partners,
supply-chain processes, and
customer relationship management needs

The framework also includes: the ability to coordinate and integrate with other e-Businesses.

As opposed to the emphasis on hierarchical information organization to ensure process coordination and data consistency, as is the case in traditional enterprise systems, the new generation of enterprise systems will be:

open,
flexible, modular, and
inter-operable.

It will fully integrate with the Web channel for supporting business-to-consumer and business-to-business transactions.

3.8 B2B e-Commerce Areas of Impact

The three major areas where B2B e-Commerce has made the most impact are:

the productivity gains made possible by transformations in processes and organizational structures;

the increasing opportunities to participate in electronic market-places to further improve the efficiency of both the supply- and buyer- sides; and the resulting B2B infrastructure to help streamline the activities and transactions across whole supply chains. It is clear that B2B e-Commerce will continue its path of transforming supply-chain relations, industrial organizations, and inter-organizational structures.

What is less clear is how to evaluate a given B2B e-Commerce system for a specific enterprise environment. Unlike traditional engineering projects or investments in new equipment, B2B e-Commerce usually involves not only infrastructure investments, but also transformed processes and varying enterprise organizational structures. How to assess the precise valuation of B2B e-Commerce is still an unsolved problem. And a solution is much needed to make technology investment and implementation decisions.

3.9 e-Business valuation

Depending on the nature of the e-Business systems, the valuation can be systematically assessed on several levels, including

B2B Supply Chain,
Enterprise,
Operational Processes,
Strategic, and
B2C Customer Relations levels.

Supply Chain: the impact of Inter-organizational systems (IOS) has been positive in improving the efficiency of business processes and the overall performance of manufacturing organizations. Electronic processing and communication of inter-organizational data improves

timeliness and accuracy of information, allowing firms to plan and manage such assets as inventory better. This type of impact is first and foremost on the operational level and results in faster transactions, cost reduction, higher productivity and improved quality.

Enterprise: Within the firm itself, value is not uniform across processes and business units; therefore, a variety of strategies are needed. The type of business units, products, suppliers and the characteristics of the enterprise have been shown to be important predictors of the level of improvement. Understanding the value of technologies and how they benefit different users, as well as business units, is critical in increasing the adoption of such systems. The very nature of e-Business technologies gives enterprises unprecedented capabilities to focus on the customers, enhancing all activities concerning customer acquisition, retention, and services. The value of these benefits is readily quantifiable. The more difficult measurements are such intangibles as brand image, reputation, and goodwill.

Operational Processes: Moreover, the key to customer facing is also about better integration of IS on the customer end and those managing supply chains and other business processes. While e-Business technologies greatly enhance relations with customers, the back-end support is critical. That is the hidden side of valuation of e-Business initiatives on the business-to-consumer front.

Strategy: On the B2B side, e-Business systems such as IOS provides competitive advantages by increasing the bargaining power of the buying organization, better coordination among supply-chain partners and greater information available about the business processes and demands across the whole supply chain. Technologies, such as EDI, have resulted in the greater integration of firms with their suppliers. Inter-organizational technologies also lead to shifts between different forms of coordination. Choosing a specific IT-based coordination structure creates risks in the form of relationship-specific investments, shifts in bargaining power and the need for trust and commitment to an ongoing relationship. Web-based B2B e-commerce systems are radically different from other IT-based systems, and, therefore, it is questionable if the valuation methods and criteria developed previously are still valid.

B2C: On the B2C side, e-Business systems generally are aimed at helping improve the whole cycle of customer relations, i.e., the acquisition, enhancement, and retention of customers. Activities involved in these different phases include direct marketing, sales force management, customer services, call-center coordination, and personalization. The value of acquiring new customers can be quantified by balancing acquisition costs and the life-time value of customers.

Enhancing customer service and the retention of existing customers are strategic factors that can be measured by the additional revenues generated by the services and the opportunity costs of losing customers due to poor service.

Challenges involved in assessing the value of e-Business technology:

There are several challenges involved in assessing the value of e-Business technology to an enterprise:

e-Business technology is transformational. The adoption of e-Business technology often requires changing business processes, organizational structure, and even supply-chain relationships. Because it is not an isolated component, e-Business technology must be evaluated in the enterprise context.

e-Business technology is dynamically evolving. New versions of enterprise e-Business systems arrive constantly. Sometimes they only require incremental changes, but at other times they bring about destructive innovation.

e-Business technology is implemented for strategic as well as for operational objectives. The intangible yet strategic benefits of e-Business systems are usually the hardest to estimate precisely.

The three major features of wireless technology in B2B e-Business are:

mobility,
the location-specific information, and
orientation toward peer-to-peer communications.

3.10 Ubiquitous Commerce

With the advent of wireless, mobile technology and devices that can be taken almost anywhere and to most business environments, the information processing power will become more person- and location-oriented, as opposed to the current paradigm that is machine-oriented based on desk-top computing architecture. Because of the ubiquitous nature of the “points of execution”; when this paradigm is implemented in electronic commerce, we call it Ubiquitous Commerce, or U-commerce. The devices used to execute U-commerce include:

handheld mobile devices (personal digital assistants (PDA),
two-way pagers, cellular phones,
net phones and in-vehicle devices),
laptops, desktops,
workstations, and
audio/video appliances.

These devices are networked together to form a strong and integrated backend and a highly mobile front-end infrastructure.

There are several major technological developments that have the potential to make next generation electronic commerce ubiquitous. The increasing use of small, hand-held mobile devices, wireless networks

and satellites has enabled a wireless extension of the Web infrastructure. With the increasing use of small portable computers, wireless networks, and satellites, mobile commerce (m-commerce) has emerged to provide a wireless extension of existing e-commerce solutions. Built upon a ubiquitous computing environment, users do not need to maintain a fixed position in the network, which increases the mobility and decreases the cost of wiring and reconfiguring wires to support an expanding staff. It allows businesses to maintain a mobile workforce inside its daily business process

3.11 Open Enterprises, Interoperable Infrastructure, and Sharable e-Processes

3.11.1 Open Enterprise:

As opposed to vertically integrated corporations, modern enterprises form and use supply-chain networks to work with other companies to meet market demand. Because of the current rapid pace of new product introduction and product updates, an enterprise needs to be able to form a global supply chain quickly with its selected partners to explore emerging market opportunities. Ideally, there should be an interoperable “supply-chain platform,” where the enterprises can plug in to be connected with its suppliers or distributors.

3.11.2 Interoperable Infrastructure:

This interoperability not only needs the support of a global information infrastructure, which is greatly assisted by the Internet, but also the availability of sharable business processes for such supply-chain activities as procurement and order-fulfillment.

The benefits of interoperable supply chains with standardized business processes have become so attractive that companies who are competitors may nevertheless adopt the same supply-chains platform and processes. Such supply chains make it attractive to collaborate to explore the increased bargaining power with the suppliers of their industry. For instance, two competitors may find themselves both better off if they can form a consortium, through which they can develop common procurement to gain cost advantages.

The use of plug-and-play e-processes greatly increases a company’s ability to work with its business partners even if they use different enterprise systems. It means:

More flexible business relationships with more partners linked by sharable e-processes;

Lower set-up costs when working with new supply-chain partners, and thus easier-to-explore, new business opportunities with greater bargaining power;

Greater visibility and information-sharing across the supply chain, making the supply chain more efficient with less inventory;

Greater integration in executing main supply-chain processes, such as order fulfillment, thus reducing cycle times; and

Improved operational efficiency enjoyed by all supply-chain participants.

The idea of developing interoperable supply chains has the potential to fundamentally transform the structure of many industries. This trend will continue, and it will force companies to adjust their practices accordingly.

3.11.3 Share able e-Processes:

As a result, several trends are emerging: The Open Enterprise Model. Companies are unbundling their enterprises into modular business processes so that they can focus on their core competencies while outsourcing the non-core businesses. Furthermore, the standardized global information infrastructure enables the same companies to open up the borders of the enterprise in order to share processes and information with their partners in the global supply chains (Moore, et al., 2000). Process sharing is the key to the seamless plug-and-play infrastructure provided by the underlying supply chains. The open systems paradigm helps provide component interoperability and commonly recognized standards, which are important to establish connectivity and full integration.

*Connectivity,
Mobility, and
Interoperability.*

Connectivity has been extended beyond simple networking, to include mobile infrastructure. The new business infrastructure will have two components:

A powerful backbone system with an interoperable platform running the major applications and business processes;

a highly portable, networked, and mobile front-end that acts as a collection of nerve cells for data collection, information sensing, and front-end processing. At the same time it provides connectivity, the information infrastructure also provides interoperability on the enterprise and supply-chain levels.

Integration and Customer Facing.

E-Business systems integrate enterprise applications from customer relationship management to supply-chain management. They also help integrate business processes across the supply chain to facilitate such supply-chain processes as order fulfillment and product development. The common infrastructure is interoperable and the processes sharable. This integration of processes and enterprise systems enables companies to interact with their customer on the one hand, while remaining fully aware of the current status of supply-chain information on the other.

3.12 Entrepreneurship in e-Business

Entrepreneurship is a process that is as messy as it is exciting. There are typical patterns, but there are no hard fast rules! Entrepreneurship always starts with entrepreneurs and an idea. The first part of the process is often termed “Opportunity recognition” and sometimes leads into a business plan. Lets identify the steps to creating a new venture as:

Opportunity recognition: What is your idea? What is the business environment for that idea?

Opportunity evaluation: How does your idea fit with the business environment? The industry? Who are the competitors? What is your target market?

Select a team. You need a driving passion and a diverse set of skills to start a business. Few persons have all of the skills necessary, but often the team can cover the bases of the technologies and business skills through the formation of a team with complementary skills. At this point, it often makes sense to do some initial thinking about what other individual skills will be needed and how and when they will be acquired. As a company grows, for example, you must often bring in a CEO from outside the business team who is more experienced in growing a rapidly growing company and executing all the steps that lead to your final goal or exit strategy.

Discuss the final goal or exit strategy for the company that you are forming. It is very important to share the same goals. It is devastating if each team member has a different goal. It is like having four people in a raft all rowing in different directions because of a lack of communication about the goal. When a new company is started there may be several final goals.

- a. You may want to take the company public through an IPO or initial public offering of stock.
- b. You may want to be acquired by a larger player.
- c. You may wish to create a private company that does not subject itself to scrutiny of the public markets.
- d. You may want to keep the company small and private because that is fun for you (a lifestyle company?).

Build a prototype. Investors and customers are all from Missouri: their motto is “show me.” Talk is cheap and hard to sell. The prototype also helps to recruit the business talent that you need. Sales people like to know what they will have to sell. Marketers need to understand the market.

Create a story. Jim Clark liked to say that his story about Netscape had the venture capitalists “drinking his Kool-Aid.” You will need:

- a. A detailed business plan
- b. A power point style presentation that can be adjusted from 10 minutes to 1.5 hours.

- c. An “elevator speech.” Can you explain your project to someone who gets on your elevator and gets off a few floors later? If not, then you had better figure out how to do it.

Raise Money. OK, this is always the tough part, although we have seen that there has never been more money available than in the present (2000). Find the dollars. Where, you ask?

- a. Use your own. If you got it, use it. Entrepreneurs have been known to mortgage their house and max out their credit cards. Your own money is the cheapest money that you can get.
- b. Friends and Family: There are people who believe in you. The downside: if you fail you still have to live with them. The upside: if you succeed, then they will share your success.
- c. Angel investors: you will often encounter private individuals who are savvy investors and like to invest in very new start-ups. They are rarely angels. They are motivated by both the profit motive and the fun of doing something new, and they also usually fully understand the risk. That may not be true of friends and family.
- d. Government: Careful here. The government is often a good source of funds to new start-ups in the technology areas. SBIR’s and other government programs can provide the seed funding for research and development. State governments will often invest in technology start-ups in their states. The danger is that you get the government along with the funding. Be sure that the extra hassle is worth the funding. Also be sure that the business plan leads to products and revenues. Too many SBIR funded projects end up as “hobby businesses” or “lifestyle businesses” that remain dependent on government funding and do not make it into the commercial market place.
- e. Bootstrap: Can you start selling product for later delivery? The old cartoon character Wimpy always used to say *“I’ll gladly pay you Tuesday for a hamburger today.”* In some businesses including software and consulting, this can be possible. *“I’ll gladly deliver a software product to you Tuesday for a few dollars today.”* If you can start like this and stay ahead of the cash flow it can be a great way to grow. It can also be a tough way. You may find yourself constantly strapped for funds and not able to do the development, marketing, or other tasks that are required to grow. Eventually you will need more funding.
- f. Venture Capital: You rarely start with the venture capitalists, but in the heady days of 1999 and 2000 this was an often-used strategy even in the early stages. In 1999, the VC’s were funding B2C dot.coms. In early 2000 they decided that B2B was the way to go. By the middle of the year it was networking infrastructure. The motto became: *“We will make money selling Levi’s and shovels to gold miners. We will not make money mining gold.”* Remember that the earlier that you go to a VC, the tougher the terms you are likely to receive. The later you go,

the more of the company that you may be able to keep. The latter assumes that you go with a successful growing business. If you are desperate for funding, then the terms are always tough.

Now make it happen! Do it! Execute! Time is of the essence for many reasons. Money has time value and will not hang around waiting for success. Getting to market first is a clear advantage, but staying ahead is a continuous process. The vaunted “first mover advantage” can be useful, but as we have seen it is not nearly enough. The best way to keep a lead is to continuously innovate and improve your product and services. Don’t let a competitor make your company obsolete. You do it yourself. You may wish to defend yourself with patents or copyrights. These can be useful, but don’t over rely on them. A patent is just a ticket to court and is only as good as your ability and resources to defend it. Build the team as you grow. You have to be willing to move additional talent in and even step aside. Achieving your ultimate goals may very well depend on that.

Repeat steps 7 and 8 above as often as required. Funding comes in rounds. There is early stage, middle stage, late stage, and mezzanine rounds. There is no set number of rounds, just a need for financing to do what you need to do.

Execute your exit strategy. If that is going public then make it happen. If it is a long career followed by retirement, plan for that too. It may be to be acquired. Just enjoy it.

3.12.1 ILINC LearnLinc Corporation

It all began with an idea, and that idea eventually became a research project. In the late 80’s and early 90’s, Wilson and his scientific colleagues were working on the application of computing and communication technologies to science and engineering education. After producing several multimedia projects, Wilson turned his attention to the management of large quantities of educational materials on networks. The early focus was on the modularization of materials and the ability to store and retrieve those modules in an object oriented fashion.

They identified three potential paths:

- Do an IPO.
- Get acquired by a complementary company
- Enter a partnership with (and receive an investment from)

a complementary company that would build upon their joint strengths and allow them to grow faster.

3.12.2 Yahoo

In the early days of the Internet many programs spread through “word of mouth” or perhaps more properly put: “word of email.” The group of Internet users was still comparatively small, technically astute, and in

constant communication with one another. This kind of spread came to be known as “**viral marketing**,” and many later companies tried to use this to market their own products. In general this seems to work best for category creating new software products that make a significant change in the way people live or do their work. Yahoo was certainly such a product. Of course, this meant that the prototype was already in existence prior to the move into the creation of the venture.

Whether the name came from the acronym “**Yet Another Hierarchical Officious Oracle**” or from Filo and Yang’s own self-image, the name was a great marketing tool in its own right. Easy to remember, a bit edgy, and short to type, Yahoo became nearly synonymous with finding things on the Internet. This does not mean to slight the contributions of search tools like AltaVista, which was both highly regarded in technical circles and used by Yahoo in the early days, but no name stuck with the public like Yahoo!



Opportunity recognition for the founders of Yahoo was more serendipitous than many new ventures. Filo and Yang were more interested in the problem than they were interested in creating a new venture. In that sense one might say that the founding of Yahoo was less intentional than many foundings. The formation of the initial team was also serendipitous and dependent upon the chance overlapping interests of two students, but that seems to be far more common in start-ups.

3.13 The transition to e-Business

There are many factors involved in the success of a business and industry, in general, that support today’s emphasis of electronic information. This section highlights Internet (business) growth and models for developing a successful e-Business.

3.13.1 Internet: Tremendous growth

The Internet fire is fueled by the nature of the technology (anytime and anywhere) and by a real growth in usage. Growth also occurs geographically as more people surf and shop online.

3.13.2 New business models

e-Business is much more than buying and selling over the Web. It is a new business model where the traditional business processes merge with Internet technologies in business-to-business (B2B) and business-to-consumer (B2C) applications. e-Business is about business change and

evolution, not just technology, even though the technology makes much of it possible. By harnessing Internet technologies to extend the reach and range of your business, you can respond more quickly to market shifts, cut product development cycles, enhance teaming within your organization, reach new markets, and serve existing customers better.

3.13.3 e-Business development

Almost all organizations and businesses follow a similar process to build their e-Business. This process is on-going. It begins with a Web presence, which moves to a dynamic site and finally to a transactional site.

4.0 Summary

The e-Business framework described in this unit, therefore, can be viewed as the next generation of enterprise systems, where the integration with B2B transactions, channel partners, supply-chain processes, and the needs of customer relationship management are equally important for managing an e-Business. The framework also includes the capability to coordinate and integrate with other e-Businesses. The new generation of enterprise systems will be open, flexible, modular, and inter-operable. As important, it will fully integrate with the Web channel for supporting business-to-consumer and business-to-business transactions. e-Business is about business change and evolution not just technology even though the technology makes much of it possible. By harnessing the internet technologies to extend the reach and range of your business you can respond more quickly to market shifts, cut product development cycles, enhance learning within the organization, reach new markets and serve existing customs better.

5.0 Conclusion

The e-Business technologies showing identified players, growth, integration and sophistication of IT and communication changes on society and economy lends us to examining in detail the characteristics of e-Business. You were exposed to 24x7x365 operations, the no bricks and mortar wall business and how the built up started. In the next unit you are going to look at the concepts and applications of e_Business infrastructure.

6.0 Tutor-Marked Assignments

1. Mention the main players in e-Business.
2. List and discuss the common features of e-Business
3. Write short notes on

- i. Infrastructure
- ii. web Infrastructure
- iii. web Technology

4. What are the steps in creating a new venture:

5. Discuss internet growth and models for developing successful e-Business

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UNIT 5: Concepts and Applications for e-Business Infrastructure

Table of Content

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 e-Business Infrastructural Requirement
 - 3.2 e-Business and Internet Age
 - 3.3 e-Business Objectives
 - 3.3.1 Bandwidth Allocation
 - 3.3.2 Information Storage and Retrieval
 - 3.4 How much of the data being generated is actually useful?
 - 3.5 e-Business Warehouse(eBW)
 - 3.6 Recommendations for Successful e-Business infrastructure
 - 3.7 Why build storehouse?
- 4.0 Summary
- 5.0 Conclusion
- 6.0 Tutor-Marked Assignments
- 7.0 References/Further Reading

1.0 Introduction

Volumes have been written regarding the application layers, web sites ingenuity, and the wonders of the world wide web. What is missing is the infrastructure requirements needed to support these multiple applications and web site ingenuity.

2.0 Objectives

At the end of this unit you should be able to:

Provides a common definition for e-Business

Shows the dramatic increase in information storage for e-Business enterprises

Identifies the types of highly granular information generated by e-Business initiatives

Provides justification for storing & accessing all of the granular information over time

Suggests a means for reducing IT burden by using StorHouse as the e-Business Warehouse

3.0 Main Content

3.1 e-Business Infrastructural Requirement

Too much has been written about e-Business. Volumes have been written regarding the application layers, web site ingenuity, and the wonders of the World Wide Web. What is missing is the infrastructure requirements needed to support these multiple applications and web site ingenuity. e-Business can cause considerable strain on an enterprise's IT department. For example, the more an enterprise engages in e-Business initiatives, the more information storage and retrieval requirements skyrocket. e-Business infrastructure is the foundation for successful e-Business initiatives. Cornerstone to the foundation is access and availability of all of the highly granular information that is generated by e-Business initiatives.

The effects of e-Business (electronic business) are hard to miss. At the macro-level, stocks have soared. The economy has been, and continues to be, bullish. At the micro-level, what is means to 'do business' has been redefined. 'Doing business' in today's economy means organizations need to embrace the Internet as part of their business strategy. More specifically, they must embrace the management philosophy and technical concepts necessary to support e-Business infrastructure.

3.2 e-Business and Internet Age

e-Business is the conduct of business on the Internet, not only buying and selling, but also servicing customers and collaborating with business partners. e-Business can include, but is not limited to:

e-Commerce,

Supply Chain Management,

Customer Relationship Management (CRM) and

Web-based Business Intelligence.

While today's business economy is defined by e-Business initiatives, there have been other 'Internet Ages' that have brought us to the e-Business world of today:

1) Age One: Information Content (1993)

Disseminate information

Reach 'eyeballs'

Create mindshare

The 'build' content phase

2) Age Two: Consumer e-Commerce (1996)

Build new revenue channels

Revenue 'shift'

Remove geographic barriers to customers

Reach new/ more customers

Transaction processing/ Secure environments

3) Age Three: e-Business Initiatives (2000)

Build more efficient business models

Create B2B marketplaces (trading communities)

Virtually integrate value chains

Accelerate intelligent information flow

Optimize customer Net Present Value (NPV)

This progression leading to e-Business initiatives resulted in continual organizational learning and/or restructuring. Therefore it can be said that e-Business involves the continuous optimization of an organization's value proposition and position in the value chain, using the Internet as a primary communication and trading medium.

3.3 e-Business objectives:

Acquiring new customers

Retaining existing customers

Cross-sell/ Up-sell products

Market Ownership

New/ improved vendor supplier relationships

Conditions for e-Business

While the e-Business objectives may be familiar, the conditions are different:

New, cost effective channel: the Internet

'Smart-shoppers'

Value-chain competition

Real-time demands

Immediacy to deliver content for market ownership

New types and forms of value-chains

Furthermore, as organizations embrace e-Business objectives and compete under new conditions, impact is felt throughout many different areas in an organization. For example, the objective of an e-Business initiative may be to streamline parts purchasing and fulfillment via web-based systems using the Internet as the primary channel. In this example, impact will notably be felt in purchasing and receiving departments, and partners of the organization within their supply chain.

However, one area of the organization that is consistently affected by e-Business initiatives is the information technology (IT) department. Although other departments (marketing, strategic planning, joint-

committees, etc.) may own or sponsor the e-Business initiative, IT has the lion's share of the labor for implementation. (Even if the organization is attempting their e-Business initiative by external acquisition, the IT department will still be responsible for integration). e-Business has had significant impact with regard to an organization's IT infrastructure. Not including labor issues and application integration, e-Business infrastructure demands are found in two primary areas:

bandwidth allocation

information storage and retrieval.

3.3.1 Bandwidth Allocation

Bandwidth allocation has been, and continues to be, a challenge. Nielson's law states that bandwidth will continue to lag behind demand. Moreover, Nielson's Law¹ claims Internet bandwidth grows by 50% each year. There are three reasons for the lagging increase of Internet bandwidth:

Telcos are conservative in terms of investment and time;

Users are reluctant to invest in bandwidth;

Internet user base is getting broader, not deeper resulting in average bandwidth requirements shifting lower.

3.3.2 Information Storage & Retrieval

Another, perhaps more challenging issue of e-Business infrastructure is the information storage and retrieval requirements.

Two important facts:

1) For a company engaged in e-Business, the amount of information generated will be large.

Considering this increase in e-Business generated information, the next logical question becomes "What exactly is this information, and where does it come from e-Business Granularity:

Business Intelligence Resources in e-Business Systems

In the most simplistic view, a client browser sends a request to a web server for resources. The web server accesses the information (resources) and sends the information back to the client browser. Although this interaction may seem simple, there is a lot of granular data and information within this transaction. Building from the ground-up (meaning that each type of information is 'in addition to', not 'in place of' the previous data type), the most granular information, or data types within e-Business systems are:

Network Information: This data is at the switch level (IP packets) in telecommunications systems. This may be referred to as call detail records, or IPDR (Internet Protocol Detail Records).

Atomic Data

Applications: Users of this information may include web masters, marketing managers and network administrators. This information may be helpful in optimizing network resources, server capacity, network infrastructure planning and development, and new applications such as

billing based on bandwidth usage and customer profiling from switch level information. This information is what is conventionally thought of to be unique to e-Business initiatives (a.k.a, clickstream, within a web site or clickthrough, to other web sites). From access logs, behavioral information of customers can be obtained, along with duration of site visit, information requested, and several other defined fields.

Information Amount Generated by e-Business: Terabytes to Petabytes depending on the size of the network, the specific applications, the number of users and the number of web server. Log Information: This data comes from the network data within the TCP/IP packet. This data is recorded onto the web server, commonly in an access log.

Considering these data types all start with the IP packet information, some may argue that these data types are all one and the same. However, an argument can be made that these data types are distinct because they each provide specific business intelligence in often very different areas. The next question becomes;

3.4 “How much of the data being generated is actually useful? Do I need to store, manage, and provide access to all of this information?”

All the Data. All the Time. When attempting to determine the appropriate level of detailed information or data from e-Business initiative to keep available, opinions vary. Some feel that most information that is generated by e-Business is of little practical value. Others may argue that determining *in advance* which information from e-Business activities should be kept, and which should not be kept is the best policy because it is not cost effective or practical to store and provide access to all of the information. Some argue that the appropriate grain of a fact table in a database should be one fact record for one visitor session. In other words, summarize up front-- keeping only the starting time, number of pages visited and ending time of each user visit to a web site.

Additionally, one could also argue that keeping all of the e-Business-generated information would be difficult because of the inherent complexity of some of the data. The primary arguments for summarizing and/or *not* keeping all of the information generated by e-Business initiatives:

The practical value of keeping all e-Business information...

Today, all e-Business information (from access logs to credit card information from a processed transaction) has practical value. Why?

No one knows the effects of the legislation (i.e., tax) being proposed for the Internet. Keeping details of client's access and purchasing patterns may be the best steps for preparedness.

Complete Customer Information. By keeping the atomic detail of access logs and purchase details over time, more complete pictures of customer

experiences will develop. This data must include all of the pages visited (e.g., all of the clickstream and clickthrough). Moreover, when this atomic data is combined with other sources of customer information (i.e., ERP, CRM, and external data) over time, a complete customer profile will be created.

Not cost effective for systems management/development...

The cost of summarizing and/or not keeping detailed e-Business information could easily be more costly than keeping it. Why?

1. Current value of information versus future value of information. Although the current value of some of the detailed information obtained from e-Business initiatives may be questioned, who knows what tomorrow's new analytical applications will be able to accomplish? Moreover, with a rich history of specific information, customer analysis, and even organizational analysis, becomes more accurate and poignant.

2. Statistically speaking, the more detailed information provided for decision support tools, the more accurate the response (e.g., standard deviation). In most cases, it becomes a question of marginal effectiveness for each reduction in standard deviation. For example, a real scenario may be "Will a 1% increase in the accuracy of my e-Business channel forecasting return a significant savings or revenue return versus other channels?"

The answer may be yes sometimes, and no other times. The point is that the accurate answers to these questions are not possible without rich, (highly granular), deep (historic) readily available e-Business information.

3. Information storage costs continue to decline. With the costs of storage media declining 35%/ year (IDC Research, www.idc.com), the cost to store data has been reduced significantly. However, the demand for data storage is growing by 80%/ year.

Difficult because of the complexity of the data which is generated by web servers...

'Complexity' implies voluminous, extremely detailed data is generated by e-Business initiatives. While this may be true, it is important to review the granularity, probable volumes, and necessary system resources to manage e-Business data, before making this statement.

This statement is a system resource issue. This is not a statement about the value of the granular e-Business information. In other words, the systems used must be able to store, manage, and provide access to all of the voluminous granularity of e-Business information. And as such, if your enterprise does not recognize the value of granular e-Business information, your competitors more than likely will.

Significant reasons why IT managers should plan for storing, managing and accessing all of their detailed e-Business information:

1. Management Impact/ Effectiveness

Data storage is a manageable issue. There is real opportunity for an IT department to impact the performance of an organization, simply by

recognizing the value of all e-Business information and implementing systems which support this information.

d. Regulatory/ Compliance

Considering the increasing debates on e-Commerce taxation, telco settlement processes, and content ownership, ensuring detailed e-Business information is readily available is, to put in simply, a mandatory organizational safeguard.

3. 'Routine' Decision Support/ OLAP

Ensuring detailed information from e-Business systems is available for routine decision support (DSS) functions is essential for customer and product analysis, network and system resource management, etc.

1. Complete Customer Profile/ Management

Perhaps one of the most important reasons to store, manage, and provide access to all of the detailed e-Business information which is generated is to be able to provide a complete customer profile, including customer information from other sources (ERP, CRM, etc.)

2. Hedge Against New Technologies and Applications

As new decision support, OLAP, and CRM applications come available, having complete information regarding customer's history, habits, and behavior will undoubtedly become increasingly important.

3. Exploration (organizational, customer, etc.)

True information exploration comes being able to not only compare and analyze information in new ways, but having unlimited availability to all of the information which is needed now, or in the future.

4. Information Security

When organizations engage in e-Business, information security between all parties is a necessity. In the event of an unplanned outage or system failure, having all e-Business information available and online is invaluable.

5. New Business Models

Information is money. This can occur as a result of improved forecasting, new and improved DSS tools, or the more discreet sale of raw information. The idea is simple: harvest data reserves for new revenues by selling these data reserves information sources to customers.

3.5 e-Business Warehouse (eBW)

Each of these independent e-Business information types have their own value to individuals within an organization (some even have value to individuals outside the organization, e.g., trading partners). As a result, an independent data mart can be constructed to support each one of these information types. Moreover, new 'e-centric' companies are booming as a result. However, attempting to compare and contrast these data types would pose a problem in this environment. What is required is a single source to be able to store, manage and provide access to each of these e-Business information types over time—regardless of the e-

Business model. The ideal would provide scalability (in size) that is cost-effective where performance is maintained.

Moreover, keeping the most granular e-Business information on-line and over time is necessary for numerous reasons such as information exploration, current DSS applications, yet to-be uncovered applications, regulatory, etc.

There is nothing wrong with information summarization at the right time and for the right reasons. However, summarization should not occur simply as a means to be able to store, manage, and access your information.

In practical application, keeping all of the historic information on transaction processing systems or web servers is not practical, primarily for performance reasons. Moreover, the inherent current and future value of e-Business information requires user access to this information beyond day-to-day analytical processing.

Since some of the applications for e-Business information remain 'untapped', a key requirement of the e-Business information repository will be information exploration e.g., ad hoc query processing.

3.6 Recommendations for a successful e-Business infrastructure.

According to Meta, "To construct robust, yet agile, e-Business infrastructure, IT organizations must master mapping e-Business models (B2B, B2C), onto reusable infrastructure patterns.... Bottom Line: Reusable patterns of integrated server and network components, skills, and organizational roles are the key to e-Business infrastructure success."

Requirements for an e-Business Warehouse(eBW), include but are not limited to:

- Massive scalability (In terms of data granularity and size of database)
- Information Security
- Extensibility among multiple platforms
- High data availability (Information storage and access)
- High and demonstrable ROI
- Reusable with multiple servers and infrastructure changes

StorHouse software is uniquely designed to store, manage and access relational and nonrelational, infinitely granular data. More specifically, StorHouse software is unique in two ways:

- 1) StorHouse software provides the most effective and efficient way to store, manage and access vast amounts of extremely granular data. StorHouse stores and provides continuous access to data, with unlimited scalability and infinite data granularity.
- 2) StorHouse software is storage media independent. StorHouse can reside on any variety or combination of storage media. It does not solely rely on disk. In fact, since StorHouse provides row-level data access

directly from tape, many StorHouse customers use high-performance tape as their primary storage medium.

3.7 Why Build StorHouse?

StorHouse was built ‘from the ground-up’ to enable e-Business applications--

applications that require storage of very large amounts of data and Structured Query Language (SQL) retrieval for future analysis. Within these data-intensive application environments, StorHouse can be used in a variety of scenarios that include, but are not limited to: Hub & Spoke, Active Archive, and Database Extension.

StorHouse Application

StorHouse as a Hub & Spoke

Provides timely, shared access to enterprise-wide, infinitely granular data. As the hub, StorHouse enables data marts (spokes) to access data from a centralized, standardized single data store. StorHouse is ideally suited for the multiple applications of today, and tomorrow’s new applications. StorHouse enables data exploration and established query processing, reduces the necessity for ‘stovepipe’ systems, and increases enterprise ROI.

StorHouse as an Active Archive

Delivers database transparency and flexibility by extending the storage capacity of a merchant database. StorHouse off-loads data from the merchant database, yet ensures the transaction-detail is still active and readily available. StorHouse ensures access to infinitely granular data and supports multiple applications.

StorHouse as a Database Extension

Extends the storage capacity of a merchant, or specialized database. Like the Active Archive scenario, StorHouse off-loads data from the database and ensures the transaction detail is still active and readily available. StorHouse as a Database Extension cost effectively increases primary database performance and enables extremely fast access to transaction-level data— without disk.

e-Business Systems : utilizing the fourth frame

Most reports divide types of e-Business systems by user domain: internal or within business(intranets), external but private with other businesses(Extranets), external and public with consumers(web). There is need to understand all three to understand e-Business possibilities. Traditional businesses have inherent limitations versus an e-Business that can be overcome by implementation of these TCP/IP-based systems.

Changes from Traditional to an e-Business

e-Business systems come with many risks versus traditional business systems but offers firms many opportunities not available in their traditional systems. pure play B2C is a hard row to hoe (high risk/low yield/little capital available). But conversion from traditional business to e-Business is almost necessity. Managers need to understand how systems will be used, why, and consequences.

4.0 Summary

Industry experts are turning their attention to e-Business infrastructure requirements. The staggering information storage requirements and need for on-line access of this information are coming to the forefront. Moreover, most of today's databases and storage systems simply are not designed to handle the new requirements of e-Business infrastructure (largely due to cost, performance, and overall scalability issues).

"e-Business infrastructure requirements will expose brand vulnerability". What is needed is a comprehensive approach for storing, accessing and managing the voluminous, granular information generated by e-Business initiatives. What is needed is StorHouse.

5.0 Conclusion

In this unit the concepts and applications of e-Business infrastructure was examined with a view to providing a common definition for e-Business. The dramatic increase in information storage for e-Business enterprises and types of granular information generated by e-Business initiatives. A means of reducing IT burden by using storehouse as the e-Business warehouse. The next unit is the unit 1 in Module 2 on the Techniques and Methodology for site development.

5.0 Tutor-Marked Assignments

1. a. Outline the 'Internet Ages'.
- b. What are the conditions for e-Business?
2. What are the primary arguments for summarizing and/or not keeping all of the information generated by e-Business initiatives?

7.0 References/Further Reading

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MODULE 2: TECHNIQUES AND METHODOLOGY FOR SITE DEVELOPMENT

- UNIT 1: e-Business Strategy and Implementation in Firms
- UNIT 2: Framework for e-Business
- UNIT 3: e-Business chain
- UNIT 4: e-Business requirements and Benefits

UNIT 1: e-Business strategy and implementation in firms

Table of Content

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Building Competitive Advantages
 - 3.1.1 First Mover Advantage
 - 3.1.2 Obtaining Market Lockup
 - 3.1.3 Cost of Switching
 - 3.1.4 Sticky Eyeballs
 - 3.1.5 Bricks and Clicks

- 3.1.6 The Porter Five-Force Analysis of Competitive Strategy
- 3.2 e-Business Strategy
- 3.3 Purpose of e-Business Strategy Development
- 3.4 Internet Store Development
- 3.5 Information and Communication technologies & e-Business
- 3.6 Conditions of Successful implementation of e-Business in a Company
- 3.7 Return on Investments(ROI)
- 4.0 Summary
- 5.0 Conclusion
- 6.0 Tutor-Marked Assignments
- 7.0 References/Further Reading

1.0 Introduction

Electronic business (e-Business) is burgeoning area. E-Business presents alternative, which has irremovable place nowadays and significantly supports profitability and competitive advantage production and business subjects. We can deduce mounting interest in electronic business from the increasing numbers of business transactions. E-Business is sometimes conceived only as internet stores, booking systems and the like. These activities are referred to as e-commerce. E-Business has a larger sense. Many other activities, whose aims are support and effectiveness increasing of business processes, come under e-Business. E-Business presents all enterprise activities that are supported of information systems and information and communication technologies (ICT).

2.0 Objectives

At the end of this unit you will be able to discuss the key efforts to obtain competitive advantage including:

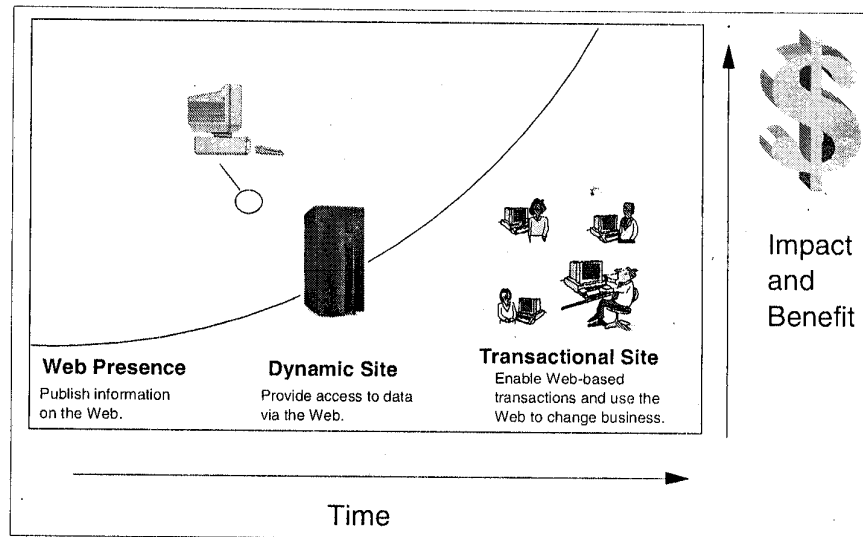
- First Mover Advantage.
- Obtaining Market Lock-up,
- Cost of switching,
- Sticky Eyeballs
- Bricks and Clicks
- Winner Take All Markets

As well as introduce the Porter 5 force competitive analysis for e-Businesses.

3.0 Main Content

3.1 Building Competitive Advantage

E-BUSINESS DEVELOPMENT KEY AREAS



e-Business Development overview

3.1.1 First Mover Advantage.

If there is one thing that characterizes e-Business, it is the importance of the first mover advantage. Those who have the idea, the resources, and the gumption to get to market first often have a huge advantage over the latecomers. In many cases Metcalf's Law accounts for much of the advantage. If your network of customers or clients is twice as large as your competitors then your network has four times the economic value. This of course attracts more customers to your site, which disproportionately increases your value even further relative to your competitor. This kind of positive feedback loop quickly locks in your competitive advantage. Systems of this type are often referred to as "network economies." Positive feedback systems are often referred to as exhibiting the "Matthew effect¹⁾" from Matthew verses 13:12 "For whosoever hath, to him shall be given, and he shall have more abundance: but whosoever hath not, from him shall be taken away even that he hath." Positive feedback systems give to those who have and take from those who have not. That is often how competitive advantages are obtained in e-Business.

Factors for the development of winner-take-all markets are:

Production Cloning,

Network Economies,

Lock-in through Learning and Investment,

Other self-reinforcing processes are:

Decision Leverage,

Natural Limits on the Size of the Agenda,
 Habit formation or Acquired Tastes,
 Purely Positional (Status) Concerns,
 Gifts and Special Occasions,
 Avoidance of Regret, and
 Concentrated Purchasing Power.

Modifying that list in the light of the e-Business experience yields the ten imperatives for sustaining a competitive advantage in e-Business:

1. Production scale
2. Network Economies
3. Lock-in through Learning and Investment
4. Decision Leverage
5. Natural Limits on the Size of the Agenda
6. Habit formation or Acquired Tastes
7. Purely Positional (Status) Concerns
8. Avoidance of Regret
9. Concentrated Purchasing Power

Production Cloning: Competitive advantage can often come because there are significant economies of scale. Often the first copy of something can be enormously expensive, but every succeeding copy can be reproduced at a very small cost.

Network Economies: The formation of auction communities such as eBay illustrates the inherent advantages to size. Once eBay had established a first mover advantage, it was enormously difficult for others to compete. A seller could find the most buyers on eBay and a buyer could find the most sellers. Why would anyone go to another auction site? eBay provides a place for buyers and sellers to meet to exchange goods through auction. The more buyers and sellers that participate, the more liquid the market and the better opportunity to get a good deal in buying and selling your goods. The first mover advantage enjoyed by eBay made it hard for buyers and sellers to switch to another site with fewer participants. Yahoo and Microsoft are both communities with lots of participants, but neither has yet been able to wrest leadership from eBay in on-line auctions.

Cumulative advantage through learning and investment: A company that establishes a competitive advantage can often maintain that competitive advantage through learning and investment. The rate at which any technology is improved is related to how dominant it is in the market. The dominant technologies are improved faster than the also-rans. This results in a cumulative advantage that can quickly become overwhelming. Microsoft Windows is a classic example of a

technology that was very slow to be adopted until it had achieved a certain market penetration. At that point the cumulative investment of Windows developers created such a rich set of applications that no other operating systems could compete. Similarly, the Oracle database did not originally enjoy a commanding market position, but once an advantage developed it began to drive the market for database applications and attract the lion's share of investment.

Decision Leverage: There are times when a very small difference in ability might lead to a very large difference in value. By any objective measure Michael Jordan was only slightly better than his very talented competitors. He really could not jump that much higher than others. He was not that much more graceful. Not that much faster. But, when you put it all together and watched him play against his competitors those very small differences meant that he almost always came out on top in any one on one basketball contest. He made the others look like they were running in mud! His very slight advantage was worth almost any amount in salary because the consequences of his excellence were so dramatic. An executive like Jack Welch at GE is only slightly better than many other middle level executives at GE, but the leverage of his decisions have such huge implications that no one would settle for second best at any price!

Natural Limits on the Size of the Agenda: There are only so many things that a single person can keep in memory. Thus the familiar has an enormous advantage over the unfamiliar. A person who is looking for a book on-line is likely to remember the address Amazon.com, but far less likely to remember any of the many other sites that also sell books. Why should they have to remember lists of names? Just type in Amazon.com and forget the rest! Amazon's familiarity comes from its market position and first mover advantage.

An e-Commerce business may simply be familiar because of general use unrelated to the site. There was a long and bitter battle over the ownership of the address "Sex.com" because it was the easiest thing to imagine typing in if you were an internet user interested in sex. Battles over familiar web site names have become commonplace in e-Business. Enterprising individuals bought up the rights to many domain names that are common trademarks for established businesses. In many cases the business had to pay millions to acquire the domain names from the original owners. In other cases businesses failed to recognize the value inherent in domain names and then were forced to acquire the domain name later. When Alta Vista discovered that someone else trademarked the name, they negotiated to buy the trademark from the owner, but failed to recognize the value of the domain name. Later they had to acquire the domain name for millions.

Habit formation or Acquired Tastes: Once you have learned to use a search engine or other application, it is often difficult to convince yourself to change to an alternative. Yahoo established a significant first mover advantage in search engines and then in portals built around search engines

Avoidance of Regret: Many years ago, the best advice given to new employees in the IT areas of corporations was “No one ever gets fired for buying IBM.” This piece of advice implies that the purchase of IBM equipment is the safe choice and the expected choice. If someone offers you a little better performance or a little better price, you had better think twice before accepting that offer. If it works you may be a minor hero. If it fails, you will surely be made to regret the purchase. Today the safe purchase might be a Microsoft operating system, a Cisco router, and Intel Inside PC, or an Oracle database. Competitors have a higher bar to clear.

Concentrated Purchasing Power: His plan was to use the concentrated purchasing power of the wealthiest persons in the world to gain advantage over the suppliers of the financial and other services. His argument of concentrated purchasing power was so persuasive that, with no business plan, he persuaded John Chambers, CEO of CISCO, Tom Jermoluk, CEO of @Home, Jim Barksdale, CEO of Netscape, and John Doerr, of the Kleiner Perkins Venture Capital Group, to finance the venture!

Purely Positional (Status) Concerns: This can occur when there is a status that can accrue with one brand that is not enjoyed by another. This explains why Tommy Hilfiger clothing became so ubiquitous on urban teens and young adults in the late 90s.

Gifts and Special Occasions: Why do diamonds enjoy a special place in our purchasing patterns? Because they have become the special symbol of certain occasions and nothing else will really do.

3.1.2 Obtaining Market Lock-up,

There is one strategy for obtaining market lock-up that is particularly advantageous to e-Businesses, and that strategy stems directly from the three driving laws:

Moore’s Law,

Bandwidth Law, and

Metcalf’s Law.

E-Business is one area of the economy which generally experiences declining unit costs for many of the elements of products and services. This allows a lock-up strategy based upon creative use of long-term

contracts and systematic renewal of contracts. If a supplier has a long-term contract with a vendor, then there is often an opportunity for the supplier to go to that vendor and offer attractive terms for early renewal. No alternative supplier can make the same offer at that time, since the contract already in force makes the costs of switching to a new provider prohibitive to the consumer. The supplier is able to offer the consumer a contract that will reduce the consumer's costs over the existing contract since the unit cost of delivering the products or services has decreased. The consumers have a huge incentive to renew the contract because they stand to save money immediately.

The astute consumer will realize what is happening, but faces a difficult choice. Suppose the supplier and consumer have a three year contract for a certain service. Suppose also that the unit cost of providing that service has halved over the first 18 months of the contract. The supplier can then offer the consumer a new three year contract at a significant discount (say 25%) to the existing contract and still make a profit. The consumer can either agree and immediately reduce the costs of the contract for the remaining 18 months of the contract, or can chose to pay the higher price for the remaining 18 months in hopes of obtaining an even lower cost of service for the next three year contract. If the consumers elect to renew early, the supplier has effectively locked in the consumers. If the consumers chose not to renew, they pay a higher price for the remainder of the contract and then the supplier has to meet the market at the end of the contract. This is almost a no-lose situation for the supplier, because the supplier will continue to have other advantages based upon the cost of switching and should have a favorable position vis-à-vis other suppliers that are trying to win the business. The only possible disadvantage is the chance of upsetting the customer, but customers rarely become upset when offered lower prices.

3.1.3 Cost of switching: As we have seen, raising the cost of switching is an important aspect of obtaining market lock-up. Once your organization has the advantage of Metcalf's Law, it needs to ensure that the cost of switching to another has more cost and more pain than the customer is willing to bear. This needs to be done quite delicately, since ham handed attempts to trap customers are usually obvious and often lead to the opposite effect of lowering switching costs. A customer that feels trapped is willing to pay a bit for freedom. The best way to keep a customer in your network is to offer better, more, and lest costly service than competitors. If the customer know that he or she can get more from your firm than from any other, then the cost of switching will always be too high.

3.1.4 Sticky Eyeballs: The investment community began to refer to the customers using the websites as "eyeballs." The job of the sites was to "grab eyeballs." The more eyeballs the better Metcalf's law treated you.

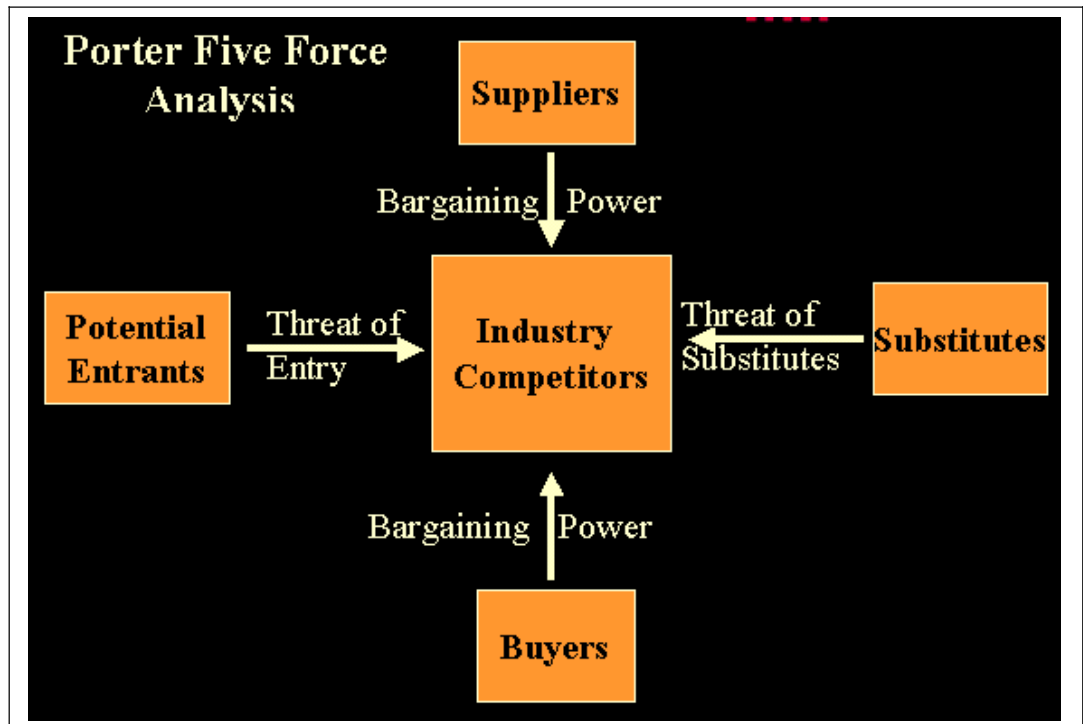
It was soon discovered that grabbing them was not enough. Once you got them to your site you needed to keep them there. Investors wanted sites with “sticky eyeballs.” The theory was that if you could keep them on your site, they were likely to bring you revenue.

3.1.5 Bricks and Clicks: At first it was thought that one reason Amazon.com had a huge advantage over Barnes and Noble was because it did not have a huge capital investment in “bricks and mortar.” Over time, that became less clearly an advantage. There was certainly the advantage of the lower capital investment, but there was a disadvantage in not being able to get product into the customers hands more quickly. Over the last two years we have seen the “brick and mortar” companies launch their own e-Commerce arms using a variety of strategies. Some kept them as part of the bricks. Some spun them out into separate companies. The former had the advantage of building on the established brand name and closely integrating the strategies of the traditions retail with that of the e-Business. The latter had the advantage of being unencumbered by the old ways of thinking, operating, financing and so on. In some cases the identification of the e-Business with the tradition brand may not have been an advantage.

There are examples of successes and failure in both models. Better insight will need to await better (and more) experience and more research.

3.1.6 The Porter Five-Force Analysis of Competitive Strategy

Michael Porter, Harvard University, has introduced a widely used scheme for analyzing an organizations competitive position. He identifies five forces that need to be evaluated to determine whether an organization can maintain a competitive advantage and also to identify potential strategies for the organization.



The Porter analysis identifies five forces and then asks for a determination of the level (high/low) of that force in this industry. The five forces are:

The intensity of the competition among industry competitors

The threat of new entrants entering the market

The amount of bargaining power in the hands of the suppliers to the organizations in the industry

The amount of bargaining power in the hands of the customer of the organizations in the industry

The threat embodied by potential substitute products to existing products.

The Five Force Analysis begins with identifying the organizations industry competitors and then evaluating the intensity of the rivalry among those competitors. Then each of the forces is evaluated in turn to obtain the best answers to the following questions.

- Is the level of this force high or low?
- What is the source of this intensity?
- What are some of the defenses that one may erect to strong forces?
- What are weaknesses the firm might exploit?
- Are there “game changing” ways to alter the forces in your firms favor?

For many of the firms in e-Business, the level of industry competition is very high, but in other areas of the economy there are often low intensity areas in which competitors are content to share along geographic or product niche lines **To an engineer or scientist, a problem once**

solved stays solved. The problem with e-Business is that no problem stays solved for long! The answers keep changing, and this requires that the analysis be done continuously.

Disruptive Technologies

When it comes to sustaining competitive advantage, companies would do well to watch out for the competitors that seem much too weak and low level to be a real threat. Harvard business school professor Clayton Christensen has developed the theory of disruptive technologies and has applied it to a variety of cases. He even offers an on-line questionnaire that one can use to determine if your company is vulnerable to disruptive technologies.

Disruptive Technologies are a powerful force in e-Business.

3.2 e-Business Strategy

E-Business strategy is derived from corporate strategy. There are three fundamental sectors in term of operating management:

customer relationship management,
supply management and
operating management.

Information system management, business processes management, management of logistics and production logistics, management of human resources come under three fundamental sectors. All these activities are supported by quite a number of CRM (Customer Relationship Management), ERP (Enterprise Resource Planning), etc. systems.

In e-Business strategy must be allowed for:

firm structure,
firm produce and business activities,
target group,
competition,
return of investments,
technical support,
staffing,
system security,
system operation,
management system.

3.3 Purpose of e-Business Strategy Development

The main general purpose of e-Business strategy developing is pursuit to obtain added value with usage of information and communication technologies (ICT). We can understand to added value as higher profit, lower costs, shortening of business transaction time and so on. The main

primitive element is procedural and technological audit. Its' output is description of state-of-the-art.

Competition analysis and analysis of strategic business partners have to be made. From results of procedural and technological audit we can identify purposes for improvement and technologies to achieve improvement. Technologies are the main supportive primitive elements of e-Business implementation. It is usually supplied by outside contractor. Functional information and price and service proposal are source information. Priorities are determined in connection with real applicability in firm with regard to price, state of firm, state of branch and business partners and generally possible contribution for firm business activities. Final phase is exemplary plan of implementation.

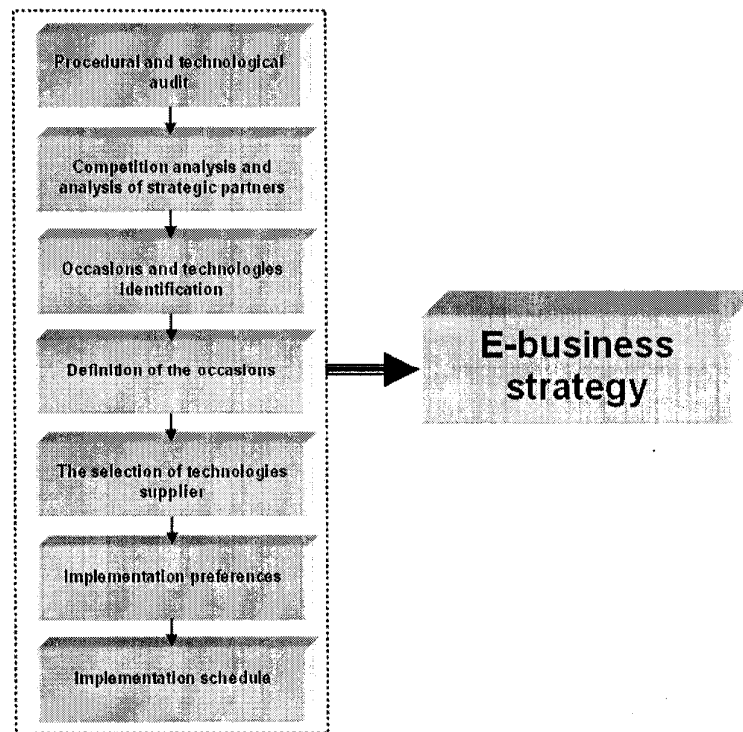


Figure 1 – Development of e-Business strategy.

3.4 Internet store development

Internet stores and internet commerce (generally called e-commerce) are by one of extensive area of e-Business. Internet stores are by one of alternative of company presentation and offer of its products. Internet stores have to fulfill many conditions to make good. All conditions have to be considered already during e-Business strategy developing. In addition to security, stability and rate demands creator of internet store has to ensure easy operation and usability not only for visitors and customers but also for workers which have to update information in internet stores and process all business and e-Business transactions. There are characteristics that have substantial effect on full value functionality and usability of internet stores. They could be stated as follows:

Search engine optimization – effort to be internet store web sites shown in one of forefront in web browser after user request. Optimization should be done both key words searching and for example in agreement with product title, brand name, product type and so on.

Eye-appeal – internet store web sites should have a good graphical layout and contain marketing components and services to customer luring. There can be for example newsletters, affiliate applications, video presentations, tags, discussion groups and so on.

An easy manageability – for both customers and staff.

Rate–high-quality graphic, multimedia components, extensive products database, searching and others must not be the cause of retardation and limit to work with internet store web sites.

Stableness – internet store has to have continuous function.

Security–in internet store security of all transaction has to be ensured. Security has to be ensured especially in context of system of payment, server attacking, name of description protecting and other specifications associated with e-Business transactions on internet.

Interfacing – data from internet store have to be processing in information system used in company. Internet store and information system have to be becomingly interconnected to make possible easy data transmission. Data transmission should be furthest automatized.

Return of investments and profit – depend upon optimization for browsers but also onto all shown characteristics.

System modularity – If we want to data base expand, we do not have to buy or develop new internet store system. Current system can be expanded with new modules, by which means function increasing.

Analyses – managers need statistic analyses of data from internet store. Fundamental statistic data may be part of internet web sites, more detailed analyses are more suitable to make in term of information system to which data from internet store are stored.

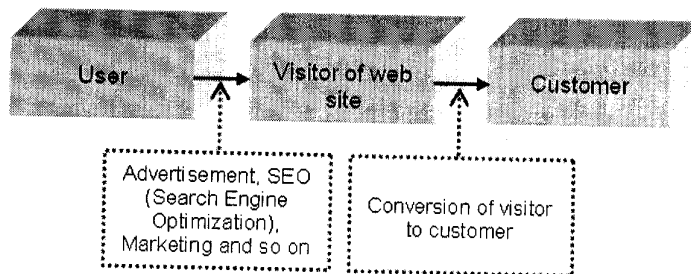


Figure 2 – Attendant to consumer conversion.

Order is most often watched action. Order is conceived as buying products or services. On internet web sites many actions can be done. We can think of its as special type of conversion even if these actions do not bring profit but are significant marketing indicator. As these conversion actions can be:

user registration,
user login,
user downloads of demo, freeware, shareware or full version of application (for example open source),
user contact (user sends e-mail, takes a part in discuss group, calls to seller and so on),
user browses promotional web sites.
Conversions are measurable variables. Generally true is fact, that increasing number of users connected to internet results in an increasing number of internet stores customers.

In terms of marketing, we have to deal with the best possible availability of internet store web sites on internet. Number of methods can be used to this goal. Search engine optimization and paid links are the most considerable.

Search engine optimization and paid links

Search engine optimization deals with localization and searching of individual web sites.

Output is optimization of web sites so that web sites been to show in one of the forefront places after user request.

We can say, SEO is lump investment,
in case of commercial applications, SEO has a short-term investment return,

becomingly done SEO is cheapest and most effective investment with sure result,

printed advertisement and similar ways of presentation are expenses with short-term effect,

SEO has a longest continuation and effect as compared with other paid services.

Besides SEO we can use paid links called PPC (Pay-Per-Click) campaigns. PPC campaigns are at the most targeted form of internet advertisement. With PPC we can order advertisement campaign onto some tens catalogues, browsers and portals with any number of key words and phrases.

SEO and PPC are realized with the aim of visit rate increasing of web sites. It results in start obtaining ahead of competition. Both methods increase conversion ratio, market share and decrements spending on customer. SEO as well as PPC have irreplaceable position in internet marketing. SEO ensure fixed attractive costs, if we want high conformability, it is more suitable to use PPC. Most suitable way is to use combine of both methods. SEO should supply standard stage and guard main web subject. PPC is suitable to use for action or time-limited offers, for start of new project and so on.

3.5 Information and communication technologies & e-Business

In the all sphere of usage, basis of e-Business are software and hardware areas contained all applications necessary for company business activities – marketing, sale, supply chain, production, custom services, accountancy, human resource management – in various languages and with possibility to engage business activities globally. In market there are many products to support these activities. If we want to choose and install some system, we have to impeach several risk areas:

usability,
performance,
security,
availability,
functionality,
operability.

These areas are characteristic for both, hardware and software tools. Beyond company decides to implement system, it should be interested in shown risk areas and do their analysis. We can claim, e-Business and e-commerce system should not be too complicated for users, it should offer sufficient achievement, it should be trustfulness in term of all conventions, norms and law in force and of course it is necessary to supply products and services in time and in request quality. It all must be supported by information system.

3.6 Conditions of successful implementation of e-Business in a company

Conditions of successful e-Business implementation in company include the following:

Incorporation of e-Business concept into company strategic concept. To this goal, detailed financial and technical analyses with regard to risk management have to be done.

We have to construct high-quality and reliable infrastructure of local area network susceptible safe data transmission.

Local area network has to be connected to internet by high-speed connection.

We have to use efficient servers intended to client services administration. Servers have to have suitable engineering characteristic and operating system ensuring data security saved in information system.

In information system, it has to be used firmware fully satisfying total functional and safety requirements and providing understandable and comfortable user interface.

One important thing is qualified and educated staff ensuring functionality of all enumerated areas.

Responsible personnel have to monitor all internal and external processes and do state-of-the-art analysis.

Principal aim of the all business activities is profit. Profit should be permanent. If we want to profit, we usually have to be investing

Investments have to be returned. If it be to the contrary, business should be no good. Return on investments and repayment-time are always important indicators.

3.7 Return on Investments (ROI)

Return on investments is rate of profit and investments. In e-Business area, investments can be to:

information system implementation,
 staffing,
 web site development,
 web site maintaining,
 marketing,
 advertisement,
 operation,
 servicing,
 logistics,
 security,
 system monitoring,

ROI is one of marketing indicators. With help of ROI we can give practical expression to efficiency of whatsoever business or fruitfulness of whatsoever investment. ROI is important indicator during e-Business strategy developing and constant monitored parameter. We can compute ROI in many ways. Generally we can write formula to ROI compute in the form:

$$\text{ROI}(\%) = \frac{\text{Profit} * 100}{\text{Investment}}$$

For concrete purposes e-commerce, if we have functional internet store and we want to solve advertisement investment return, we can use next form:

$\text{ROI}(\%) = (\text{average margin} * \text{incomes from advertisement campaign}) / (\text{cost of medium where advertisement was located} + \text{charges for campaign administration})$ Main aim is achieve the highest value of ROI indicator. If ROI does not achieve value 1, financial loss comes in to being. Important indicator is time of investment return. Return of investments is one of fundamental indicators of strategic concept. If analysis do not show enough high investment return, we have to change prospectus.

4.0 Summary

Implementation of e-Business in firm calls for make detailed analysis and strategic concept development. Wrong made analysis results in negative influence on current firm doing business and e-Business implementation would not produce expected results.

5.0 Conclusion

Nowadays e-Business is important alternative and part of company business activities. Implementation of e-Business activities require primarily e-Business strategy processing. E-Business strategy has to contain detailed analysis of all basic and related areas. Main item of e-Business strategy development is fulfillment of procedural and technological audit. Wrong or narrow analysis can be the cause of later problems related with investments increment or system re-engineering. One of frequent e-Business activities is electronic business realized as internet stores. Internet store development and keeping should always be according to conditions, norms and law in force. Non-performance some of conditions may result in limitation of functionality, customer restriction and financial loss. One of fundamental conditions is need to keep accessibility of internet store in internet browsers. To this goal we can use both methods SEO and paid links. In many cases as good option is combination of both methods. E-Business fundamental elements are information systems in companies. Its realization and operation have for e-Business activities important effect. That is way if we want to choose, implement and operate information system, we have to have in mind all related risk areas and do detailed analysis. By virtue of e-Business strategy definition and analyses doing, we can define fundamental conditions of successful implementation e-Business in small, medium sized and big companies. In all cases, we have to monitor and analyze investment return to business activities.

6.0 Tutor-Marked Assignments

1. Critically examine the first mover advantage.
2. What are the conditions necessary for e-Business implementation.

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UNIT 2: Framework for e-Business

Table of Content

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Application Framework for e-Business
 - 3.2 Framework Overview
 - 3.3 Development tools and Components
 - 3.4 Application Server Software
 - 3.5 Secure Network and Management Software
 - 3.6 The e-Business Circle
 - 3.7 e-Business Challenges
 - 3.7.1 Business Value Chain: End-to-end Solution Model
 - 3.7.2 ERP: Core Business Applications
 - 3.7.3 Customer Relationship Management

1.0 Introduction

The Application Framework for e-Business is an architecture and methodology for building e-Business applications that uses industry standards and leading products. The framework for e-Business is also the view on how to create a successful foundation and architecture for applications being built. Experience shows that companies typically go through well-defined steps when going through business transformation. Companies use the e-Business cycle repeatedly for each business transformation project they undertake.

2.0 Objectives

At the end of the unit you will be able to:

Understand the e-Business framework

Discuss IBM application framework for e-Business

Identify development tools and reusable application components.

Identify and discuss the phases of e-Business cycle;

Understand the e-Business challenge;

Answer key question in the development of an e-Business application for CRM.

3.0 Main Content**3.1 Application Framework for e-Business**

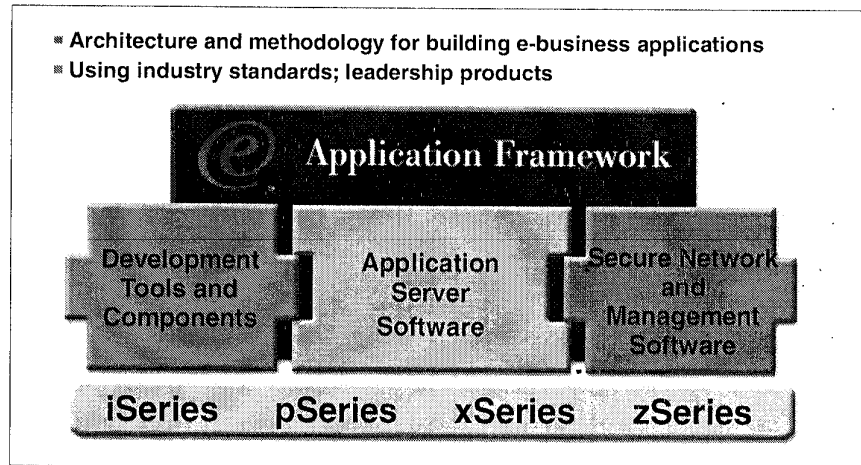


Figure 1. Application Framework for e-Business

The application framework provides the right supporting foundation for your new applications (Web-enabled) working with the Web. That means that this foundation is standards-based (in particular Java), easy-to-understand, and is a prescriptive approach to developing applications that are specially tuned to run on the Internet. This is an entire solution approach, rather than a single product or point solution. This means consistency in application development, faster speed for development, faster speed to deploy. Plus, it gives companies who “build fast and grow fast” the ability to quickly take advantage of the extensive opportunity that the Internet represents.

The Application Framework for e-Business helps to build applications for the heterogeneous multi-vendor world and shortens development cycle times by providing cross-platform tools and standards-based software that leverage the existing infrastructure and applications. It provides the fastest, safest way to capitalize on e-Business.

3.2 Framework overview

Framework provides a methodology including the recommended architecture, programming model, ideal standards and techniques as well as the supporting software portfolio application server software, development tools and components, secure network, and management software. These elements are shown in Figure 2 and are explained in the following list.

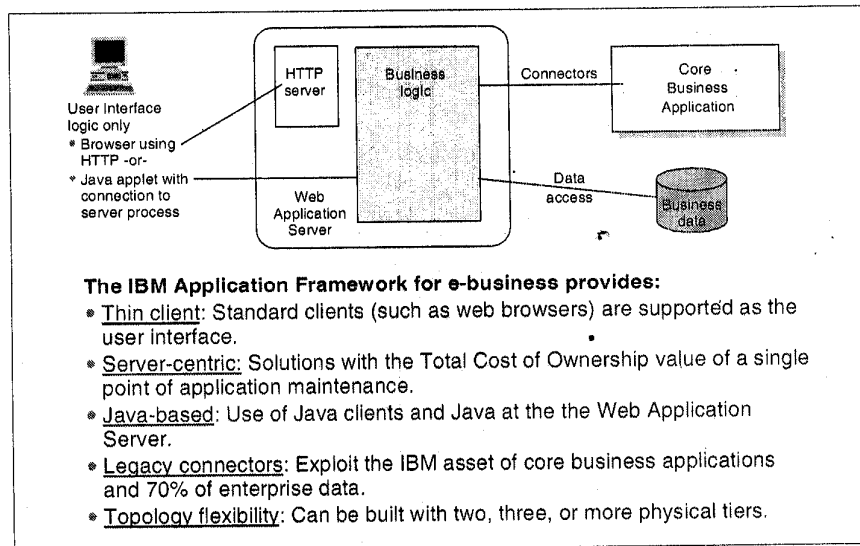


Figure 2. The e-Business application model

- **Programming model:** A single unifying Java-based programming model for building Web applications that can be written once and run anywhere.
- **Architecture:** Based on a “Web-able” style of network computing (object oriented design) and providing universal connectivity, rapid development and deployment, software reuse, and connections to “external services” where existing applications and data reside.
- **Ideal standards:** TCP/IP, HTML, XML, Java, servlets, JavaBeans, etc.

Application Framework for e-Business provides:

Thin client: Standard clients (such as web browsers) are supported as the user interface. Server-centric: Solutions with the Total Cost of Ownership value of a single point of application maintenance. Java-based: Use of Java clients and Java at the Web Application Server.

Legacy connectors:

Topology flexibility: Can be built with two, three, or more physical tiers.

3.3 Development tools and components

IBM offers a rich set of development tools and reusable application components. These are complemented by leading application server software:

- VisualAge Family (includes Java)
- Domino Designer and Lotus Tools
- WebSphere Studio
- IBM San Francisco Application Framework

The software portfolio contains state-of-the-art products and a set of business-tested software to help customers develop, serve, integrate, secure, and manage their e-Business applications.

3.4 Application server software

The heart of the Application Framework is a set of application servers for building, running, and managing advanced e-Business applications:

- HTTP Server
- Lotus Domino
- WebSphere
- WebSphere Commerce Suite (previously called Net.Commerce)
- DB2 Universal Database (UDB)
- MQSeries
- CICS Transaction Server for iSeries

Each of these servers is mature and secure, feature-rich, and field-tested, the product of years of experience.

3.5 Secure network and management software

Security and manageability are keys within an e-Business environment. The SecureWay Family of products simplifies the challenge of locating, connecting, and securing all the parties and resources involved in an e-Business transaction or interaction. In this family of products, we cover:

- Host On-Demand
- Host Publisher
- Tivoli (for more information, see <http://www.tivoli.com>)

Those products could be seen as “Web-enabler” tools for existing applications. Host Publisher can also be classified as an application development tool.

3.6 The e-Business cycle

The e-Business cycle provides companies a blueprint of how to move through each phase when creating and deploying applications and providing support for e-Business initiatives. In practice, it can be a powerful tool that allows businesses to act more quickly and decisively when faced with business threats or opportunities.

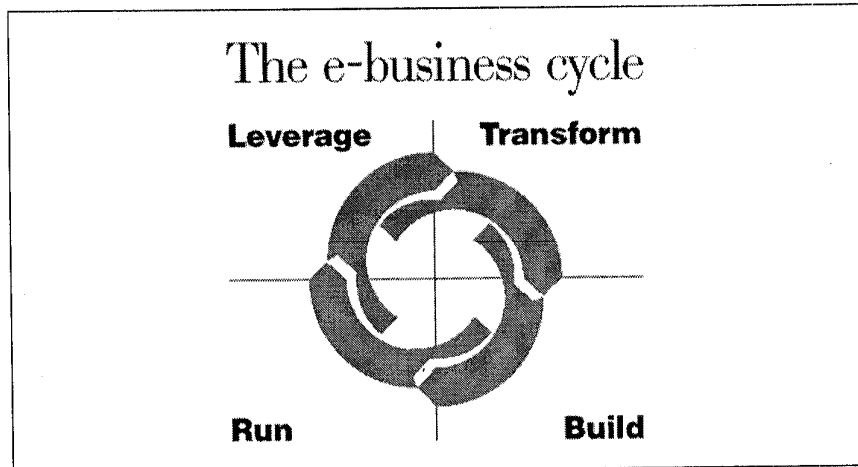


Figure 3. The e-Business cycle

The four phases of the e-Business cycle are further explained here:

Transform core business processes: This stage is about doing business in new ways by applying Internet technologies to create maximum value for your business. It's about "business, not just technology". e-Business changes the way you actually do Customer Relationship Management (CRM), Supply Chain Management (SCM), and electronic commerce. This means developing an electronic means to do business that provides benefits to the business and the customer.

Build new applications: Transforming core business processes requires a new generation of applications. They run on servers, leverage existing applications and data, and scale to meet user demands. The Application Framework for e-Business is designed to help you build and deploy a new generation of applications that are open, flexible, and easy to change. This allows businesses to "start simple and grow fast".

Run a scalable, available, safe environment: The infrastructure that provides these new applications is under considerable pressure. Businesses are looking for a better return on investment. Users want systems that are easy to use, yet always responsive. The solution is to provide an environment with scalable servers, flexible clients, and advanced storage devices, which are all handled in a secure, manageable way.

Leverage knowledge and information: e-Business is about creating a responsive organization that makes intelligent use of all types of data and organizational knowledge. It allows you to use data as a competitive advantage for example, profiling, personalization, and product offering customizing, and businesses can quickly customize product and service offerings to the customers requirements.

In its entirety, the e-Business cycle builds the basis for the Application Framework for e-Business to provide a supporting structure for businesses and provide organizations with a common, unified programming environment.

3.7 e-Business Challenges

3.7.1 Business value chain: End-to-end solution model

The end-to-end solution model Figure ... shows the variety of business applications that e-Business can have if applied from suppliers to customers. This model also focuses on the back-office applications in a company that are typically Enterprise Resource Planning (ERP) style business applications that house much of a company's valuable data. This data is not only valuable for the actual business, but also for suppliers for example, production or inventory information and customers for example, order status or support.

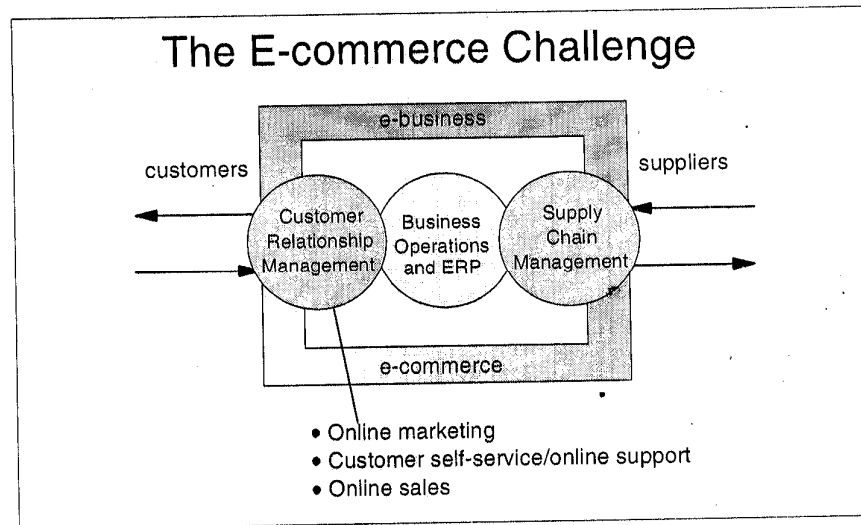


Figure 4 End-to-end solution model

The e-data is not only valuable for the company, but also its suppliers and customers. End-to-end e-Business solutions leverage core business data and are the basis for most e-Business applications today. This is where to start when looking for potential e-Business opportunities.

3.7.2 ERP: Core business applications

ERP packaged software covers the primary back-office functions of a business such as financial systems (General Ledger, Accounts Payable, Accounts Receivable, and so on), inventory management, human resources, planning, procurement management, supply chain management, customer relationship management, and sales force automation. The business data that ERP applications contain is the raw material for many kinds of e-Business applications that leverage into Customer Relationship Management, supply chain management solutions, e-commerce, and other related solutions.

3.7.3 Customer Relationship Management

Customer Relationship Management (CRM) involves supporting, developing, and retaining profitable customers. CRM is central to e-Business. Analyzing customer behavior enables businesses to personalize their offerings and to e-Business customers suppliers.

Doing this successfully means organizations can maintain good customer relationships. This is key to retaining customers, which is something every organization is working hard to do. Gaining a new customer is six times more costly than retaining an existing one. Creating an e-Business application involves exploring the central theme of CRM: developing solutions that serve customers better. The development of an e-Business application for CRM begins by answering some key questions:

Which back-end support processes (for example, inventory management, transportation management, product design) are integral to serving customers better? This involves inventorying available data and going through a process to assess the value of that data to customers and then determine which information to supply in which manner.

How can a Customer Relationship Management initiative to involve or integrate these processes in a manner that results in true performance improvements for customers be deployed? Some examples are to provide better information for example, more accurate, faster, and easier to access or better service for example, 24x7 support, product access, and lower prices.

Which business processes can be significantly improved by effectively implementing them as e-Business solutions? Typically these involve customer interaction points for example, price lookups, account status, and reports, large distributions of unit for example, promotions, announcements, and newsletters, or data inputs for example, account information, such as an address change.

What is the relative business value of each independent process and which application will customers value most? There can be many.

How capable is the IT infrastructure of supporting Customer Relationship Management initiatives to integrate customer-facing or back-end operational processes? Back office systems are opened to customers without a customer service representative as a middle person. This creates its own unique availability, performance, and usability issues.

An effective Customer Relationship Management system helps businesses be more successful because they can identify and sustain profitable and enduring relationships with their customers. This happens when customers obtain the right information, at the right time, in the right format. It provides value!

4.0 Summary

This unit has introduced the architecture and methodology for building e-Business application using industry standards. Such issues like the tools, application software and management software roles and types were shown. You have seen that e-Business, e-Commerce through customer relationship management business operations and ERP, supply chain management like customers to suppliers vice versa.

5.0 Conclusion

The unit is a precursor to the actual development/building of e-Business. The unit shows the e-Business cycle and the linkage which are CRM, ERP and SCM. In the next unit we will be looking more on the e-Business chain.

Teacher Marked Assignments

1. Discuss e-Business framework
2. Distinguish IBM application framework for e-Business and the general framework.
3. List and discuss the phases in e-Business cycle.
4. The development of an e-Business application for CRM begins by answering some key questions; list and explain them

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UNIT 3: e-Business chain**Table of Content**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Internet-based computing and communications
 - 3.2 Supply Chain Integration and E-Business
 - 3.2.1 Information Integration
 - 3.2.2 Planning Synchronization
 - 3.2.3 Workflow Coordination
 - 3.2.4 New Business Models
 - 3.2.5 Integration = Cooperation
 - 3.3 The Role of Technology and The Internet
 - 3.4. Electronic Information Integration
 - 3.4.1 Increasing Order Variability Up the Supply Chain
 - 3.4.2 Internet Info Hubs: Key to Sharing
 - 3.4.3 Collaboration = Profits
 - 3.5 Planning Synchronization
 - 3.5.1 From Nuts to 'Nets' The Internet Delivers
 - 3.5.2 IP and Knowledge Sharing
 - 3.5.3 Profits Follow Collaboration
 - 3.6 Electronic Workflow Coordination
 - 3.6.1 Procurement
 - 3.6.2 Order Processing and Financial Flows
 - 3.6.3 Procurement Coordination For New Products

- 3.6.4 Engineering and Product Change
- 3.7 New Business Models
 - 3.7.1 Virtual Resources
 - 3.7.2 Supply Chain Restructuring
 - 3.7.3 Product Upgrades
 - 3.7.4 Mass Customization
 - 3.7.5 Service & Support
 - 3.7.6 From Products To Service
 - 3.7.7 Multi-channel Click-and Mortar Fulfillment
- 3.8 Supply Chain Monitoring and Measurement
- 3.9 Market Intelligence and Demand Management
- 4.0 Summary
- 5.0 Conclusion
- 6.0 Tutor-Marked Assignments
- 7.0 References/Further Reading

1.0 Introduction

Over the past decade a combination of economic, technology and market forces has compelled companies to examine and reinvent their supply chain strategies. Some of these forces include the globalization of businesses, the proliferation of product variety, increasing complexity of supply networks, and the shortening of the product life cycles. To stay competitive, enlightened companies have strived to achieve greater coordination and collaboration among supply chain partners in an approach called “supply chain integration.” Information technology, and in particular, the Internet, play a key role in furthering the goals of supply chain integration. While the most visible manifestation of the Internet has been in the emergence of electronic commerce as a new retail channel, it is likely that the Internet will have an even more profound impact on business-to-business interaction, especially in the area of supply chain integration. The Internet can redefine how back-end operations — product design and development, procurement, production, inventory, distribution, after-sales service support, and even marketing — are conducted, and in the process alter the roles and relationships of various parties, fostering new supply networks, services and business models. The term “e-Business”— as distinct from “e-commerce” — can be used to describe this exciting adoption of the Internet to accelerate the goal of supply chain integration. In this context, e-Business specifically refers to *“the planning and execution of the frontend and back-end operations in a supply chain using the Internet.”*

2.0 Objectives

At the end of the unit you will be able to:

offers real-world examples of how companies large and small have adopted e-Business approaches to achieve the significant benefits of supply chain integration.

Illustrates the power of e-Business with examples of innovative technology solutions.

Discuss how cross-supply chain performance monitoring will be a critical success factor in achieving the advantages inherent in supply chain integration.

Examine the impact of e-Business on supply chain integration on four critical dimensions: information integration, synchronized planning, coordinated workflow, and new business models.

3.0 Main Content

3.1 Internet-based computing and communications

E-Business— the use of Internet-based computing and communications to execute both front-end and back-end business processes — has emerged as a key enabler to drive supply chain integration. Businesses can use the Internet to gain global visibility across their extended network of trading partners and help them respond quickly to a range of variables, from customer demand to resource shortages. By adopting e-Business approaches businesses can reap the benefits of supply chain integration — reduced costs, increased flexibility, faster response times — more rapidly and effectively.

3.2 Supply Chain Integration and E-Business

How and where do we see the impact of e-Business on supply chain integration? There are four key dimensions in which the impacts can be found:

Information integration

Planning synchronization

Workflow coordination, and

New business models

Taken in order, these four represent escalating degrees of integration and coordination among supply chain members, culminating in whole new ways of conducting business.

Table 1: Supply Chain Integration Dimensions E-Business and Supply Chain Integration

Dimension	Elements	Benefits
Information Integration	<ul style="list-style-type: none"> ▪ Information sharing & transparency ▪ Direct & real-time accessibility 	<ul style="list-style-type: none"> ▪ Reduced bullwhip effect ▪ Early problem detection ▪ Faster response ▪ Trust building
Synchronized Planning	<ul style="list-style-type: none"> ▪ Collaborative planning, forecasting & replenishment ▪ Joint design 	<ul style="list-style-type: none"> ▪ Reduced bullwhip effect ▪ Lower cost ▪ Optimized capacity utilization ▪ Improved service
Workflow Coordination	<ul style="list-style-type: none"> ▪ Coordinated production planning & operations, procurement, order processing, engineering change & design ▪ Integrated, automated business processes 	<ul style="list-style-type: none"> ▪ Efficiency & accuracy gains ▪ Fast response ▪ Improved service ▪ Earlier time to market ▪ Expanded network
New Business Models	<ul style="list-style-type: none"> ▪ Virtual resources ▪ Logistics restructuring ▪ Mass customization ▪ New services ▪ Click-and-mortar models 	<ul style="list-style-type: none"> ▪ Better asset utilization ▪ Higher efficiency ▪ Penetrate new markets ▪ Create new products

3.2.1 Information Integration

Information integration refers to the sharing of information among members of the supply chain. This includes any type of data that could influence the actions and performance of other members of the supply chain. Some examples include: demand data, inventory status, capacity plans, production schedules, promotion plans, and shipment schedules. Ideally, such information can be accessible by the appropriate parties on a real-time, on-line basis without significant effort.

3.2.2 Planning Synchronization

Planning synchronization refers to the joint design and execution of plans for product introduction, forecasting and replenishment. In essence, planning synchronization defines *what* is to be done with the information that is shared; it is the mutual agreement among members as to specific actions based on that information. Hence, members in a supply chain may have their order fulfillment plans coordinated so that all replenishments are made to meet the same objective – the ultimate customer demands.

3.2.3 Workflow Coordination

Workflow coordination refers to streamlined and automated workflow activities between supply chain partners. Here, we take integration one step further by defining not just “what” we would do with shared information, but “how.” For example, procurement activities from a manufacturer to a supplier can be tightly coupled so that efficiencies in terms of accuracy, time, and cost, can be achieved. Product development

activities involving multiple companies can also be integrated to achieve similar efficiencies.

In the best-case situation, supply chain partners would rely on technology solutions to actually automate many or all of the internal and cross-company workflow steps.

3.2.4 New Business Models

Adopting e-Business approaches to supply chain integration promises more than just incremental improvements in efficiency. Many companies are discovering whole new approaches to conducting business, and even new business opportunities not previously possible. E-Business allows partners redefine logistics flows so that the roles and responsibilities of members may change to improve overall supply chain efficiency. A supply chain network may jointly create new products, pursue mass customization, and penetrate new markets and customer segments. New rules of the supply chain game can emerge as a result of integration fueled by the Internet.

3.2.5 Integration = Cooperation

Integration cannot be complete without a tight linkage of the organizational relationships between companies. This linkage must take place on many planes.

Channels of communication must be well defined and maintained, with roles and responsibilities clearly articulated.

Performance measures for members of the supply chain also need to be specified and monitored. A member of the supply chain may be held accountable for some performance measures of another member, and there may be some performance measures for which multiple organizations are jointly held accountable. Such extended performance measures encourage closer collaboration and coordination.

Incentives must be aligned for all members in order for supply chain integration to work. Incentive alignment requires a careful definition of mechanisms in which the risks and associated gains of integration efforts are equitably shared. Moreover, the incentive for each member must commensurate with her investment and risk.

The success of any supply chain integration effort is predicated on close cooperation inspired by a perception of mutual benefit. As we will see, e-Business approaches can go a long way toward fostering the necessary level of trust and commitment.

3.3 The Role of Technology and The Internet

Supply chain integration is not new; many companies have already pursued it as a way to gain competitiveness. Information technology has long been a major factor. Relational databases, client/server architecture, TCP/IP network protocols, multimedia, wireless technology, and most

recently, the Internet, have each, in their way, spurred new innovation and new possibilities.

The e-Business, or Internet computing, model, has now emerged as perhaps the most compelling enabler for supply chain integration. Because it is open, standards-based and virtually ubiquitous, businesses can use the Internet to gain global visibility across their extended network of trading partners and help them respond quickly to changing business conditions such as customer demand and resource availability. The following

sections provide abundant evidence of this, with examples from a wide range of companies and industries illustrating how the Internet has fundamentally changed their supply chain strategies.

3.4. Electronic Information Integration

Information integration is the foundation of supply chain integration. For companies across a supply chain to coordinate their product, financial and information flows, they must have access to accurate and timely information reflecting the status of their supply chain. The capability for all supply chain partners to have access to shared information on a timely basis is therefore a key to improving supply chain performance. To ensure that a supply chain is driven by true consumer demands, information sharing is critical. This is the most effective way to counter the problem of demand information distortion in a supply chain -- the well known "bullwhip effect." Information distortion often arises when partners make use of local information to make demand forecasts and pass them to upstream partners; partners making ordering decisions based on local economic factors, local constraints or performance measures; and gaming behaviors to exaggerate orders when there are perceived uncertainties in supply conditions. These distortions are amplified from one level to another in a supply chain, and are considered to be one of the biggest causes of inefficiencies in a supply chain.

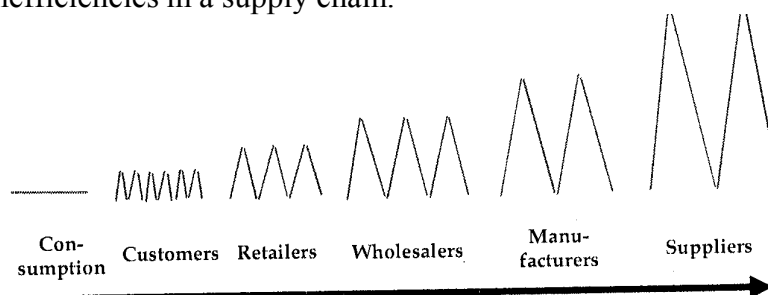


Figure 1: Information Distortion and The Bullwhip Effect

3.4.1 Increasing Order Variability Up the Supply Chain

One way to counter the bullwhip effect is to have transparency of demand information. Indeed, in the grocery industry, such transparency is considered to be the cornerstone of supply chain integration, and is a

key ingredient of “Efficient Consumer Response,” a movement towards total supply chain integration in that industry. Companies engaged in information sharing efforts usually share sales data, inventory status, production schedule, promotion plans, demand forecasts, and shipment schedule information.

3.4.2 Internet Info Hubs: Key to Sharing

The Internet is an efficient electronic link between different entities, and has proven to be an ideal platform for information sharing. The power of the Internet stems from open standards, permitting easy, universal, yet secure, access to a wide audience at a low cost. One approach to Internet-based supply chain integration is the *information hub* that instantly processes and forwards all relevant information to all appropriate parties. The information hub is a node in the data network where multiple organizations interact in pursuit of supply chain integration. It has the capabilities of data storage, information processing, and push/pull publishing. The overall network forms a hub-and-spoke system with the participants' internal information systems (i.e., ERP or other enterprise systems) being the spokes.

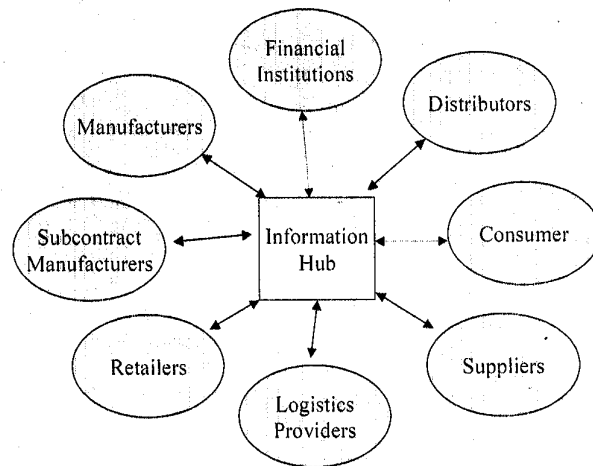
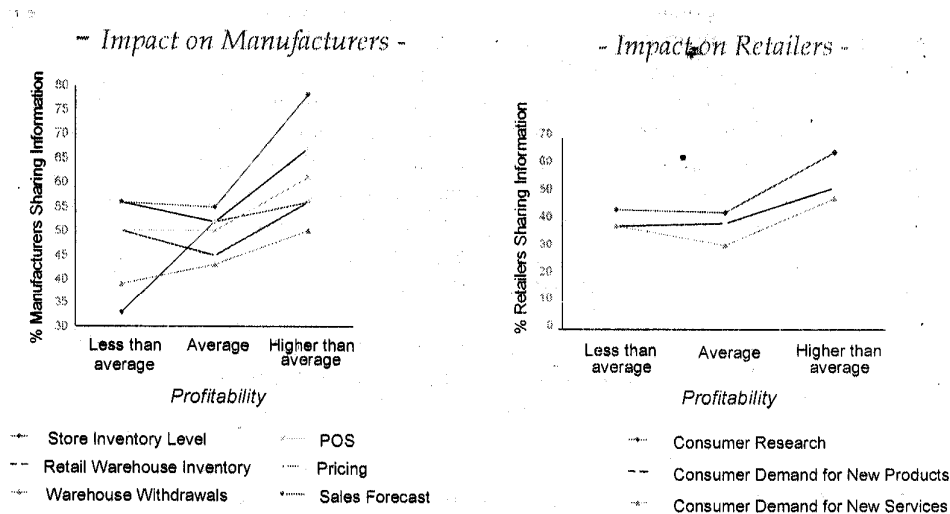


Figure 2: The Information Hub Model

An analog to the information hub in the physical logistics world is “cross-docking,” a process in which products from multiple supply sources arriving at a logistics hub are sorted in accordance to the needs of destination points. They are then delivered to the destination points without being stored at the hub. In a similar fashion, the information hub allows critical supply and demand data to be “cross-docked” and seamlessly forwarded to the right partners at the right time.

3.4.3 Collaboration = Profits

Is information sharing worth the effort and risk? A recent study conducted jointly by Stanford University and Andersen Consulting, looked at 100 manufacturers and 100 retailers in the food and consumer products industry. The results were revealing: companies that reported higher than average profits were the ones who were engaged in higher levels of information sharing.



Based on a survey study by Stanford University and Andersen Consulting, 1998.

Figure 3 Higher Profits Linked with Higher Level of Information Sharing

3.5 Planning Synchronization

Once supply chain members have agreed to share information, the next logical step is to agree on what to do with it. Planning synchronization points to the exchange of *knowledge* by the partners so that they can collaborate to create synchronized replenishment plans. Establishing ground rules on what to do with shared information and agreeing on critical actions up and down the supply chain can further mitigate problems such as the bullwhip effect. It also goes a long way toward ensuring that all partners achieve full value from the integration exercise. Here, again, the Internet can play a key role. One such example is the Collaborative Planning, Forecasting and Replenishment (CPFR) initiative. In CPFR, both the buyer and the seller make use of the Internet to share forecasts, detect major variances, exchange ideas and collaborate to reconcile differences, so that eventually, both have a common forecast and replenishment plan.

3.5.1 From Nuts to 'Nets' The Internet Delivers

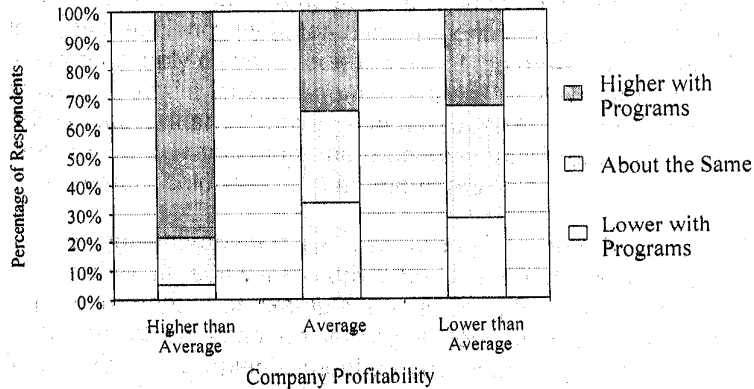
Both consumer and business-to-business companies can achieve the benefits of Internet-driven collaboration. In the business-to-business world, Adaptec, a fab-less semiconductor company, and Cisco Systems, the leading networking equipment vendor, are undertaking similar initiatives. The case of Adaptec illustrates the value of internet-based collaboration to a company faced with evolving supply processes, innovative products, and a geographically dispersed supply chain. Using a software application called Alliance (developed by Extricity, now part of Peregrine), the company communicates in real time with its design center in California, its foundry in Taiwan, and assembly plants in Japan, Hong Kong and Singapore, exchanging detailed and complex design drawings, prototype plans, test results, and production and shipment schedules. This greatly facilitates their ability to check demand and supply levels, and respond quickly to potential mismatch problems. It also helps shorten their new product development times. With the use of Alliance, Adaptec's cycle time was cut by more than half. In another example of planning synchronization, Cisco has embarked on a very ambitious project to create an e-Hub linking multiple tiers of suppliers via the Internet. It is intended to coordinate supply and demand planning across the supply chain, using intelligent planning software provided by Manugistics. The e-Hub will also help identify potential supply and demand problems early, give proper warning to the appropriate parties, and permitting prompt resolution, all via the Internet.

3.5.2 IP and Knowledge Sharing

Other new companies have emerged to support new product designs and new product introduction through collaboration and sharing of intellectual properties. One example is SpinCircuit in the electronics industry. By creating a Universal Data Network for design data such as EDA CAD libraries, MUP/ERP and PDM, approved vendor lists, and design data sheets, design engineers and manufacturing engineers can collaborate to speed up the design and introduction process. The Internet has thus played a key role in supporting companies to "design for supply chain management." The Internet is also enabling innovative ways to leverage knowledge capital critical to the design process.

3.5.3 Profits Follow Collaboration

As with information sharing, synchronized planning pays big dividends for those willing to make the investments.



Based on a survey study by Stanford University and Andersen Consulting, 1998.

Figure 4 Higher Profits Follow a Higher Level of Joint Demand and Logistics Planning

As Figure 4 illustrates, the survey found that companies reporting higher than average profits are also more engaged in joint logistics replenishment and planning programs with their trading partners.

3.6 Electronic Workflow Coordination

The Internet permits companies to take collaboration one step further, through coordination, integration and even automation of critical business processes. Workflow coordination can include activities such as procurement, order execution, engineering change, design optimization, and financial exchanges. The result are much more cost-effective, speedy, reliable and less error prone supply chain operations. Below, we offer a number of examples of how different companies are pioneering workflow coordination activities in these and other areas.

3.6.1 Procurement A typical manufacturing company needs to procure thousands of products from hundreds of suppliers. The Internet helps to manage the complexity of the procurement process. They also automate the internal procurement process from requisition to order, as well as the supplier interactions from order to payment. The solutions enable companies to reduce operational costs and increase efficiency by automating the entire indirect goods and services supply chain. Indeed, most of the market exchanges, provide e-procurement solutions for their members. Increasingly, companies are also relying on scientific replenishment software to drive the timing and quantity decisions in procurement. This results in inventory turns that are head-and-shoulders above the competition. Longs' supply chain has been dubbed the "hyper-efficient pharmaceutical demand chain."

3.6.2 Order Processing and Financial Flows

Instill, a Silicon Valley startup company, has created an Internet-based service to facilitate and process orders, as well as coordinate rebates, discounts, and other financial exchanges for operators (like restaurants), distributors and manufacturers in the foodservice industry. Its mission is to develop easy-to-use services that lower costs and provide valuable information for all members of the foodservice supply chain. Its solution replaces the traditional time-consuming, error-prone purchasing systems with a secure and user-friendly client program for food operators to order food products on the Web. In addition, the Web site serves as an information hub that links buyers and suppliers in the food service market

3.6.3 Procurement Coordination For New Products

Sourcing parts for new products can be a major hurdle to timely and profitable new product introductions. Using the Internet, companies can conduct complex purchasing tasks — such as parts-list management, quoting, decision-making, ordering, order change and order confirmation — in hours instead of days. The Internet also lets companies tap into a bigger supply base to ensure dependable supply and backup sources. Timeliness in supplier selection, order quote generation and receipt, and the integration of purchasing decisions with a company's internal Enterprise Resource Planning systems are particularly valuable in new product introduction.

3.6.4 Engineering and Product Change

As product life cycles grow shorter and shorter, managing product rollovers — the transition from one version of a product to another — is now a routine challenge faced by many high tech companies. Product rollover can be a vulnerable time for a company, exposing them to significant loss of market share if mismanaged. A major risk is the time taken to have all the new parts ready for the rollover. Engineering changes involved in rollovers may require both new suppliers, new bills of materials, and new requirements for existing parts. Product changes —updates, enhancements and patches performed between product versions—are equally common events in the high tech industries. These changes can be due to component cost change, product improvements, process modifications, quality feedbacks, material shortages, and product obsolescence. Product changes involve the collaboration of design engineers, procurement, suppliers, manufacturing and process engineers, contract manufacturers, service support, and product management. Here, again, Internet-based solutions can play a key role, providing a platform for coordinating and streamlining the complex activities entailed in product changes.

3.7 New Business Models

Once companies begin to realize the promise of e-Business enabled supply chain integration, they often discover entirely new ways of pursuing business objectives, developing strategies and business models that were neither apparent nor possible prior to the Internet. These new business models and opportunities are as limitless as the imagination. The following examples show the range of possibilities.

3.7.1 Virtual Resources The Internet facilitates information search so that multiple resources in a supply chain that once acted independently can now be tapped simultaneously to satisfy special needs. Examples include inventory stockpiles, untapped capacity, or even unmet demand, all of which can be pooled to create a secondary market of “virtual resources.” Such secondary markets can create high value for participants by minimizing imbalances between supply and demand and reducing exposure to inventory obsolescence. Internet-based secondary markets can thus benefit, in most cases, every member of the supply chain.

3.7.2 Supply Chain Restructuring

With the advance of information technologies, companies can also restructure the logistics flows of their products to gain efficiencies. Physical flows no longer have to follow information flows: the Internet allows information flows to substitute for some of the inefficient physical flows. Cisco has been one of the most successful companies engaged in using the Web to this end.. The result: lower inventory, faster, more accurate order fulfillment, and reduced costs.

3.7.3 Product Upgrades

Most of us are familiar with the use of the Internet to perform upgrades to software products. But some innovative companies are exploring ways to use the Internet to upgrade hardware products, as well. These online field upgradeable systems can range from multi-use set-top boxes and wireless telephone cellular base stations to communications satellites and network management systems.

3.7.4 Mass Customization

The Internet enables many companies to use the Web to allow customers configure specific order options tailored to the tastes and preferences of the customers. Hence, the Internet facilitates mass customization. This has been a key feature of online retailers, but has now spread to many mainstream business and products. Mass customization, while not appropriate for every product or industry, can be a powerful way of cementing customer relationships by providing a highly cost-effective level of personalized service.

3.7.5 Service & Support

Service and support can be a time-consuming, costly diversion for many companies. Using the Internet to perform remote sensing and diagnosis has proven to be a highly cost-effective solution. Looking at the PC support area, a software company called tuneup.com developed a remote maintenance service aimed at helping individual and companies keep their PCs running. A subscriber of the service would allow the service center to remotely collect data on her computer, checking viruses and other anomalies, alerting the customer, and providing online fixes. They also advise and help the subscriber to install software upgrades, hardware drivers, and program add-ons specific to her computer.

3.7.6 From Products To Service

Intuit develops and markets the world's best-selling personal finance, small business, and tax preparation software, as well as a set of Web-based financial tools. In the past, the company offered only software products sold primarily through retail stores. With the advance of the Internet, Intuit has been able to create Internet based services for both individuals and businesses. These range from online tax preparation and form submission to payroll, office supplies procurement, mortgage brokering, insurance, electronic bill payment and much more. In addition, since Intuit has links to many key banking institutions, it can also access the appropriate data, such as dividends and interests payments, and include them in the electronic tax filing. The revenue from services, enabled by the Internet, is steadily increasing as a percentage of Intuit's overall revenue. Delivering these services to customers via the Internet is only the most visible aspect of this strategy. Behind the scenes, Intuit uses a range of Internet tools and solutions to link and orchestrate a vast supply chain of providers, from banks and brokerage houses to independent mortgage brokers, from insurers to office supplies retailers like Staples. Without the Internet, Intuit's transition to a service-based company would not be possible.

3.7.7 Multi-channel Click-and Mortar Fulfillment

The high cost of order fulfillment for online retailers has been viewed as a major impediment to success. Traditional "offline" retailers are pioneering the combination of the digital channel with traditional brick-and-mortar infrastructure. 7dream.com in Japan is an example of such a "click-and-mortar" multi-channel model. Seven-Eleven Japan (SEJ) is the largest and most successful convenience store chain in Japan. In 2000, SEJ created 7dream.com, a joint venture involving seven of Japan's industry giants: SEJ, Nomura Research Institute (NRI), Mitsui, Sony, JTB, NEC and Kinotrope. 7dream offers a large pool of products on its Website, allowing customers to pick up orders at a local SEJ store two or three days later. In this way, the value of Internet-based channel is combined with the power of SEJ's infrastructure of extensive stores and logistics without incurring the costs and risks of carrying an

expanded range of inventory. Another example of click-and mortar multi-channel fulfillment is CVS, a major US pharmacy chain. CVS allows customers to place prescription orders on the CVS Web site and pick up their orders at their local store, eliminating wait. In another example, ToysRUs leverages the logistics infrastructure of Amazon.com for order fulfillment, while customers can order directly from the company via its Web site. Many others, like the Gap and Lands' End, are developing similar click-and-mortar multi-channel fulfillment and distribution strategies.

3.8 Supply Chain Monitoring and Measurement

The ultimate value of supply chain integration can only be achieved if all partners trust that they will see returns commensurate with the effort invested. Moreover, they must not perceive that their participation puts them at a competitive disadvantage, either against other members, or against traditional competitors. The more complex and dispersed the supply chain, the more difficult it is to balance the needs of all parties. To assure mutual trust and optimum performance at every point in the chain, monitoring and measurement emerge as critical success factors.

A New Industry Based on Trust

Monitoring supply chain performance is an intriguing new field. Terms like Supply Chain Event Management, Supply Chain Process Management, or Supply Chain Execution Management are used interchangeably for this purpose. Supply chain monitoring must start with tight tracking of the many different processes involved in a supply chain. A number of new technology solutions are appearing to provide updated information on how products and information flow through the different parts of the supply chain. A few of them are described below.

Manufacturing In manufacturing processes, DataSweep has created a sophisticated system to track manufacturing data, such as capacity, yield, work in process, and machine status, etc. Such information can then be transmitted via the Internet to appropriate parties, and hence provides the foundation of manufacturing process monitoring.

Transportation/Logistics Savi Technologies is an example of a company that makes use of RFID (Radio-Frequency Identification) technologies to track individual products, containers like totes or pallets, and transportation vehicles, as they move through key choke points along the supply chain (such as a warehouse, a dock, or an airport.) The information is put on a common Internet platform, so that total visibility of end-to-end real-time movements can be obtained. The company's new offering, SmartSeal, provides secure monitoring of products against tampering or thefts. It also enables customs clearance to be carried out effortlessly, once the security of product contents is assured.

E-Hubs as monitoring Systems Tight monitoring enables companies to detect problems early, so that corrective actions can be taken promptly. The e-Hub concept, described earlier, that Cisco and other companies are undertaking can be viewed as a supply chain monitoring system.

Procurement and Contract Compliance Monitoring often requires tracking of supplier performance and contract fulfillment. The foodservice market exchange Instill, mentioned earlier, provides this service for their customers. Manufacturers, for their part, must have access to the aggregate demand and tracking data showing how their products move through each distribution channel.

Cross-Chain Monitoring Supply chain integration also requires performance measures that go beyond a company measuring its own performance. As companies share demand information, collaborate on planning decisions, and exchange decision rights for supply chain integration, it is important that performance is not measured locally, but that performances at different parts of the chain are shared to all appropriate parties. The Internet can again be used to facilitate performance measurement across a supply chain.

3.9 Market Intelligence and Demand Management

As tools and techniques for managing the supply side of the equation mature and become more widely adopted, companies will turn to managing demand as the next way to optimize resources and performance. The application of e-Business practices can provide a massive set of demand data with great value potential. Data mining, data marts and other database analysis techniques have long provided companies with the ability to derive business intelligence from internally generated sources. Statistical aggregation of consumption data from multiple sources can provide market information for manufacturers and suppliers essential to planning merchandising decisions, promotion plans, and new product development decisions.

The optimization is based on nonlinear programming techniques, capturing the interactive effects of products, stores, marketing instrument decisions, and time, as well as the supply chain cost impacts resulted from the demand management decisions. Such a powerful solution is made possible due to the existence of extensive demand data. This is a new area of competitive battlefield.

The combination of comprehensive demand data and transparency across the supply chain opens the door to the next stage in supply chain integration: demand management. While many view demand as a murky and unpredictable variable in their attempts to plan, there are many opportunities to tune and manage demand to bring it into concert with the rest of the supply chain. Armed with up-to-the-minute capacity and resource data, companies can target demand creation programs such as discounts, rebates, regional or niche marketing to stimulate or dampen demand.

4.0 Summary

In fact, e-Business has already had a significant impact on supply chain integration, but it is safe to say that we have only scratched the surface. New models are continuously being developed. By adopting e-Business approaches for supply chain integration, companies can realize dramatic returns through efficiency improvements, better asset utilization, faster time to market, reduction in total order fulfillment times, enhanced customer service and responsiveness, penetrating new markets, higher return on assets, and ultimately, higher shareholder value. This unit the impact of e-Business on supply chain integration, with particular emphasis on four key areas: information sharing, synchronized planning, workflow coordination, and the evolution of new business models.

Dimensions of SC Integration	Business Processes			
	Procurement	Order Fulfillment	Product Design	Post-Sales Support
Information Integration	Supplier information sharing	Information sharing across the supply chain	Design data sharing, product change plan sharing	Customer usage data linkages
Planning Synchronization	Coordinated replenishment	Collaborative planning and coordination, demand and supply management	Synchronized new product introduction and rollover plans	Service supply chain planning coordination
Workflow Coordination	Paperless procurement, auctions, auto-replenishment, auto-payment	Workflow automation with contract manufacturers or logistics providers, replenishment services.	Product change management automation, collaborative design	Auto-replenishment of consumables
New Business Models	Market exchanges, auctions, secondary markets	Click-and-mortar models, supply chain restructuring, market intelligence & demand management	Mass customization, new service offerings	Remote sensing & diagnosis, auto-test, downloadable upgrades
Monitoring and Measurement	Contract agreement compliance monitoring	Logistics tracking, order monitoring	Project monitoring	Performance measurement and tracking

Table 2 Examples of E-Business Impacts on Supply Chain Integration and Business Processes

5.0 Conclusion

E-Business has been a powerful and compelling enabler of supply chain integration across a wide range of industries. As a result of e-Business, many of the core supply chain concepts and principles have been put in practice in a much more effective way. These concepts include: information sharing, multi-party collaboration, design for supply chain management, postponement for mass customization, outsourcing and partnerships, and extended or joint performance measures. The Internet has allowed companies to come up with highly innovative solutions that accelerated the widespread adoption of these core supply chain principles. In the next few years, we will see an explosion of business-to-business applications of the Internet as visionary companies develop new paradigms of e-Business for the future. Many have already found ample opportunities in e-Business. Such advancements have accelerated the movement towards supply chain integration. The landscape of such integration efforts will be very different from the traditional ones. Companies that make use of e-Business to redefine supply chain integration will achieve significant increases in efficiency and gain tremendous competitive edge over their competitors.

6.0 Tutor-Marked Assignments

- 1a. List the key dimensions in which the e-Business impact on supply chain integration.
- b. Explain your list in 1a above.
2. Show diagrammatically the information hub model.
- 3a. What is planning synchronization
- b. List and explain the possibilities in new business models.

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UNIT 4: e-Business requirements and Benefits

Table of Content

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 e-Business Success
 - 3.2 Requirements for success
 - 3.3 Indicators of e-Business applications
 - 3.4 Additional Indicators for success
 - 3.5 Other benefits of running your e-Business application

3.6 e-Business and Finance

3.6.1 Creating Market Value

3.6.2 Using Market Capitalization to Create

Acquisition

3.6.2.1 Wall Street

3.6.3

Valuation Strategies

3.6.4 Valuation by Network Economics

3.6.5 Venture Capital.

3.7 What are the Benefits of e-Commerce & e-Business?

3.7.1 Helps Create New Relationship Opportunities:

3.7.2 Open for Business 24x7

3.7.3 Increases Brand or Product

Awareness

3.7.4 Establish Customer Loyalty

3.7.5 Potential to Increase Overall Business Sales

3.7.6 Potential to Increase Company Profits

3.7.7 Potential to Decrease Some Costs

3.7.8 Expands Geographical or Customer Reach

3.7.9 Allows for Smaller Market or Niche Targeting

3.7.10 Allows for Easier Delivery of Information

4.0 Summary

5.0 Conclusion

6.0 Tutor-Marked Assignments

7.0 References/Further Reading

1.0 Introduction

The success of any business endeavour has to do with recognition and holding sacrilege of the identified critical success factors. e-Business is no exception in this age long management practice. During the second half of the twentieth century, investors in North America adopted an investment posture that valued capital gains far more than dividends. In part, this was because capital gains were taxed at lower rates than dividends. Also, the taxation could be delayed until the sale of the securities and thus one could time when the taxation occurred. Dividends are taxed in the year in which received and there is little favorable tax treatment and no ability to time (to chose when to pay taxes and take profits or losses). Capital gains were also desirable because they could occur for a variety of reasons rather than just because a company had a growth in earnings. Dividends usually require significant earnings. Investors also seemed to approve of management policies of reinvesting earnings (while hopefully creating market value) rather than paying them out as dividends. In the unit on valuation strategies, we will see how this drives management decisions. The

processes involved with conducting business on the Internet and opening an e-Commerce shop to sell from have several benefits to both merchants and the customers who buy from them. The biggest benefits of conducting business Online include a cheaper upfront cost to the merchant, it's easier to set up and open the store and it's faster to get an Online business up, running and making sales.

2.0 Objectives

At the end of this unit you will be able to:

Understand the reasons behind the growth of e-Business entrepreneurs

Discuss the requirements for e-Business success

Identify benefits of running e-Business application Understand the finances of e-Business

Discuss how market values is created

Determine how companies are using market capitalization to create acquisition currency

Understand valuation strategies: Assets, Earnings, Revenue, Losses or Eyeballs, Venture capitals, IPO, Investment strategies. Appreciate the import of e-Business

Convince organizations the reason d'être of engaging in e-Commerce and e-Business.

3.0 Main Content

3.1 e-Business Success

Paying attention to the e-Business success secrets explains why there are more internet entrepreneurs on the way to e-Business success than ever before!

There are three simple reasons for this.

First, the internet is exploding.

Secondly, for the would-be e-Business success seekers, there has never been a time where more opportunities exist to earn extra income. The almost endless varieties of e-Business success formats make this a unique time to explore a revenue generating venture either full-time or part-time.

Thirdly, the explosion of technically advanced e-Business programming is phenomenal. Automation of business systems has become the standard..

But you must act intelligently. After all, we are talking about a business decision. No business, no matter how automated it is, is going to run itself. It requires a serious commitment of time and energy, especially on the marketing and selling side of the e-Business. There are six requirements considered essential to e-Business success. They are:

A turnkey business where all the essential programming is already set up for you.

Proven, verifiable track record of home-based business success.

Technically simple . . . doesn't require you to acquire a range of technical skill to effectively operate your e-Business.

Multiple income streams. You can make more money if your e-Business generates cash from a variety of sources.

Scam free. Take you time to check out each e-Business opportunity.

Don't be sucked in by the get-rich-quick hype. If it sounds too good to be true, it probably is.

Money-back guarantee. Let's face it. You are not going to know for sure whether or not a new venture is right for you. You should have the opportunity to try it say, for a month. If it is not working the way you expect, you can get a refund.

3.2 Requirements for success

Business pressure is increasing. Executives, including the CEO and Board of Directors (BOD), demand responsiveness and flexibility in their IT systems. Users demand reliability and functionality. The CEO demands better cost control. Existing and new customers demand new ways to access information and world class customer service.

All of these demands challenge and put tremendous pressure on systems to accommodate these varying requirements. Downtime is feared because it impacts more than employee productivity. It affects the bottom line in the e-Business world.

3.3 Indicators of e-Business applications

- Standard-based: Support all clients equally.
- Server-centric: Data, application logic, and business rules are managed centrally and can update all in one place, which means quick and cost-effective deployment.
- Leverage core systems: Extend existing investments in legacy systems that still run your business.
- Scalable: Applications that grow with your business and meet unpredictable demands, day and night.
- Quick to deploy and easy to use.
- Manageable: Ensure system continuity and availability; downtime is costly.

The environment in which these applications run also needs to have specific attributes such as scalability, availability, and security.

3.4 Additional Indicators for success

Beyond scalability, availability, and security, successful e-Businesses incorporate these additional attributes:

- Scalability for capacity on demand: Investment protection for applications, snap-in upgrades for hardware, ability to add capacity on the fly, and so on.
- Interoperability among systems: Synchronization of updates, real-time currency, sharing of data, common business rules, and so on.
- Availability around the clock: Continuous access to data, workload management, redundancy, backup and restore, and clustering.
- Security of data and transactions: Built-in security, firewall, cryptography, access control, global sign-on, network security, and secure gateways and servers.
- Manageability of multiple resources: For example, networks components, operating systems, databases, applications, and servers.
- Integrated system services: For example, database services, transaction services, basic HTTP services, Java services, messaging services, components services, and Enterprise JavaBeans.

3.5 Other benefits of running your e-Business application

The top advantages that the platform delivers today:

- **Security and integrity:**

Both are quite important on the Internet. Security provides access to core business applications, secures data internally, and secures transactions. There are several types of products customers use to solve network security issues, such as stand-alone firewalls, security appliances, and security options in both hardware (routers and hubs) and software.

- **Reliability and availability:**

These benefits are key because e-Business solutions are 24x7 operations and downtime equals lost money and customers.

- **Scalability:**

This means how easily a computer system can grow and how much total growth is possible. Typically e-Business solutions start small and grow quickly. This type of growth requires a system that can easily and quickly grow as demand grows.

- **Ease of management:**

Central administration is another essential point when working with the Web. Having central management of system resources makes the operator function much simpler.

- **Logical Partitioning (LPAR):**

This allows you to have the Web server, multiple OS versions, languages, e-commerce, database access, and e-mail systems on the same machine.

- **Java leadership:**

- **Cost of ownership:**

With scalability, security, and reliability built in from the ground up, the platform is designed to enable you to conduct business-to-business and business-to-consumer Internet transactions.

3.6 e-Business and Finance

Since market value could be created through earnings growth, revenue growth, or excitement about the future prospects of companies, there were a variety of strategies available to companies to allow them to meet investor expectations, raise money, and increase their market capitalization. Because, investor excitement or hype worked so well in creating market capitalization, both new and old economy companies used it more and more often. Established enterprises experienced extreme frustration as their market capitalization was stuck at very low multiples of earnings or revenues, while the new enterprises enjoyed very high valuations even though the multiples of revenues were outrageously high and earnings were non-existent. After the fall of the market in late 2000, Regis McKenna, Silicon Valley Marketing expert, noted, "Most of that advertising is not value creation. It's aimed at investors, to keep the market value up. "

Many old economy companies found a way around that by spinning out new companies from the old or by creating tracking stocks to extract market value from some of their assets that were "hidden" within the larger enterprise. Tracking stocks were stocks issued and trading whose worth was based upon and linked to sub-division of the larger company without actually spinning those components off into economically separate units. In general tracking stocks were not as well received by markets as actual spin-offs were.

3.6.1 Using Market Capitalization to Create Acquisition Currency

In the 1990s, market capitalization was much more closely related to investor expectations of future success than it was to current financial success as measured by revenues and earnings. The high market capitalization that was accorded to many of the new e-Businesses drove business strategy. On the one hand, the high valuations were an expression of an expectation of future growth for the company. Woe to the company that disappointed in that growth. This led to strategies that emphasized growth over any other objectives. On the other hand, the high valuations were a resource to be used to acquire the other resources that a company needed to be successful. CISCO is famous for the acquisition strategy that they used and that was enabled by the high market value accorded their stock.

3.6.2.1 Wall Street Analysts

The opinion of the analysts on Wall Street that follow specific industries is a key factor in determining stock valuation. Companies often devote quite a bit of time to presentations and meeting with analysts to try to influence their opinions. Analyst's opinions tend to be relentlessly positive.

There has been quite a lot of concern about the close relationship between analysts and the investment banking businesses of their firms. Analyst's who give low ratings may endanger their firms ability to do business with those firms that the analysts cover. There is a strong concern that

this can influence an analyst to rate a stock higher than it might deserve. Whatever the reason, it is certainly true that analysts very rarely give a stock a low rating.

Most analysts at investment banks are focusing on equity and they are most interested in the company's growth prospects. Part of their analysis must project how the market will reward company actions. Debt analysts tend to focus on the details of the companies financial situation. Equity analysts tend to project the future. Debt analysts tend to examine the immediate financial past. Not surprisingly they often reach different Conclusion.

3.6.3 Valuation Strategies

Some would say that the valuations given to these new companies are akin to the famous How does one value a company? Over the years, investors have looked at different kinds of metrics for success. Among those are:

- Assets
- Earnings
- Revenues
- Intellectual Capital
- Customers

The main metric of personal financial success is assets.

What do you own?

How much money do you have?

This can also be used as a measure of financial success for corporations but is no longer viewed as a very good metric in this regard. For an investor to benefit from a corporation's assets, the assets either have to be used to generate earnings or they have to be liquidated and distributed. In general, (but not always) liquidation occurs after failure. Investors prefer to benefit through growth in earnings. For this reason, earnings are generally viewed as the more desirable metric for the financial success of a corporation.

Most financial reporting includes various ratios for each company. Those who favor looking at earnings will focus on the price/earnings ratio (Price/Earnings) or the ratio of market capitalization to total earnings, while those who look at revenues will look at the ratio of market capitalization to revenues or sales (Price/Sales). The most conservative investors might look to the ratio of price to book value of the company (Price/Book).

Financial success can be further abstracted by asking how an investor profits from earnings. This can happen either through dividends paid to the investor from corporate earnings or from the capital appreciation of the stock that the investor holds. Over the years, the relative values that investors assign to dividends versus capital gains has changed. More conservative investors, particularly those who are older and perhaps

dependent upon a predictable cash flow from investments tend to favor dividends. Less conservative and younger investors often favor capital gains. Over the last 50 years the balance has shifted in the direction of a preference for capital gains. There are many reasons for this.

Taxation policy often favors capital gains since capital gains can usually be deferred for many years and then are taxed at a lower rate when taken.

Younger investors are often investing for retirement (or at least later in life) and do not have an immediate need for the income from the investment.

They would prefer to leave the earnings and allow them to compound. The shift to a preference for capital gains can also lead to another way of measuring the value of a company and that is through earnings growth. The market capitalization of a company is the value of each share of stock times the number of shares outstanding.

Market Cap = share market value * shares outstanding

There is some dissension about how to measure the latter figure. Some feel that options should be included and others do not. You can find sites with it calculated either way! Conversely the market value of each share may be viewed as the market capitalization of the company divided by the number of outstanding shares.

Economists tell us that the market capitalization of any company can be divided into a **current** value and a **future growth value**.

Investors who are looking for capital gains (most investors today) are then looking for rapid growth. In a friction free market, the growth value of each company will be discounted so that the rates of return are the same for any investment. In real markets, growth is much harder to predict. There are winners and there are losers, and the ability to forecast the growth prospects of an organization is a key to investment success.

Expectations Analysis

If traditional methods of valuing corporations do not really work for e-Business, and the proxy methods of clicks and eyeballs remain speculative, then what might a skeptical investor do to evaluate the market valuations being given to the e-Businesses? Expectations analysis provides one method of looking at valuations and understanding the implications.

One way is to start with the market price of the stock and determine what kind of revenue growth that price implies. The question then becomes whether that growth rate is realistic.

The key equation for estimating market value is:

Market Value = Current Operations Value + Future Growth Value

In order to calculate Current Operations value we would need to have earnings.

Let us assign some symbols for ease of calculation Let

G = Growth (%) that the company will have to show, and

R= Historical Return (10-12%) enjoyed by stock owners

CC = Cost of Capital

Earnings = Current Earnings or Estimated Potential Earnings at current Revenue

COV = Current Operations Value (COV_0 is the value in year 0 and COV_{10} is the year 10 value)

MC = Market Cap (similarly: MC_0 or MC_{10}) and then

$$MC_{10} = MC_0(1 + R)^{10}$$

$$COV_{10} = COV_0(1 + G)^{10}$$

Now by the end of ten years we want

$$MC_{10} = COV_{10}$$

Equating those and solving for G leads to an equation for the anticipated growth percentage.

$$G = (1+R)(MC_0/COV_0)^{0.1} - 1$$

Note that the 0.1 exponent in this equation comes from 1/10 where ten was the number of years. In general: for n years the exponent simply becomes 1/n.

Since $COV_0 = \text{Earnings}/\text{Cost of Capital}$

$$COV_{10} = \text{Earn}/CC$$

$$G = (1+R)(CC*MC_0/\text{Earn})^{(1/n)} - 1$$

These are all daunting numbers to any investor.

3.6.4 Valuation by Network Economics

3.6.5 Venture Capital.

Venture Capital is the rocket fuel for entrepreneurs and there has been an ample supply of rocket fuel available to new businesses. Once again we see a curve that has aspects of exponential growth

IPO

For years it was a rule of thumb that venture capitalist wanted new companies to be able to show four profitable quarters prior to going public. The Netscape IPO defined an entirely new set of rules that has dominated IPOs for the last five years. The central tenant of the new rules was the first mover advantage. The goal was to create such a lead on potential competitors that no one could catch up. From this perspective revenues are beside the point and profits might be a sign that you were not serious about building the business. These new companies could not be valued based upon a price to earning multiple. They had no earnings. Multiples of revenues were not even useful since many companies had hardly started earning revenues prior to going public.

The Crash of the Dot-Coms

When one considers the finances of e-Business, the reality of the Hope, the Hype, the Power, and the Pain is never more evident! Having predicted the end of business as we know it and uncritically jumped upon the bandwagon of dot coming the world, the media pundits rushed to trash and bash the new world once the bottom fell out of the Internet stock indexes. It is instructive to note that they did not rush forward to warn of this before the crash. Instead they rushed to warn us after the crash!

Twelve lessons from the experience of the Dot-Com crash:

- The Internet isn't as "disruptive" as we thought.
- If it doesn't make cents, it doesn't make sense.
- Time favors incumbents.
- Making a market is harder than it looks.
- There is no such thing as "Internet time."
- "Branding" is not a strategy.
- Entrepreneurship cannot be systematized.
- Investors are not your customers.
- The Internet still changes everything.
- The Internet changes your job.
- The distinction between Internet companies and non-

Internet companies is fading fast.

- The real wealth creation is yet to come.

While some of these are debatable at best, there is a certain truth in each. It would be useful to understand the complexities of each of these statements and the guidance that each might provide.

Throughout this unit, we have tried to develop the ability of critical analysis that helps the reader to avoid these kinds of large amplitude swings in opinion. e-Business is just business and the rules of economics continue to apply. You are encouraged to continue to apply the usual business analysis tools to analyze the prospects for e-Businesses.

3.7 What are the Benefits of e-Commerce & e-Business?

3.7.1 Helps Create New Relationship Opportunities:

Expanding or opening an e-Business can create a world of opportunity and helps to establish new relationships with potential customers, potential business associates and new product manufacturers. Just by being in an easy to find location that is accessible to users all over the world, you will be available for others to find and approach you about new opportunities. Customers who don't know you exist will know about you, product suppliers will request you add their items and other businesses will approach you about partnership opportunities. Many of these opportunities would not present themselves without an Online presence or site for them to discover you on their own.

3.7.2 Open for Business 24x7:

An e-Commerce site basically gives you the ability to have unlimited store hours, giving your customers 24 hours a day, 7 days a week access to shop and buy items from you. Some merchants choose to limit their hours to 5 days a week, but orders can still be made over the weekend and customers can still make contact 24/7 via email, phone or fax. In addition, the costs associated with having your store open 24/7 are much less than maintaining a physical storefront or phone operator with 24/7 operation capability. You can literally take orders and let customers shop while you sleep, take vacations or from remote locations.

3.7.3 Increases Brand or Product Awareness:

Having an Online business means that you can literally reach out to millions of consumers looking for what you sell anywhere in the world. By reaching out to new markets and displaying your site prominently in front of them, you will be able to help increase your company/domain brand name and also increase awareness about your product line. By giving users 24/7 access in an easy to find location, you will help to create more word of mouth buzz for your e-Business, in turn helping to promote your brand name and products. Users who haven't heard of you will discover you exist and help spread the word about you.

3.7.4 Establish Customer Loyalty:

An e-Commerce storefront will help create an easier means for your customers to purchase the items you sell and offers a unique way to display and describe your products in a informative, visual and interactive way. The customers you have will become more loyal shoppers each time they visit, making e-Commerce great for improved customer satisfaction and visitor loyalty. Now that you offer your products for sale Online, consumers will be able to shop from your catalog more easily, get updates on new items or product discounts and can shop or buy anytime they wish.

3.7.5 Potential to Increase Overall Business Sales:

An e-Commerce store that is an extension of a physical storefront is a great way to boost overall business sales and potentially increase company profits across the board. Companies who already do business from a physical location are typically unaware of how much more they could be making if only they were to expand into their Online marketplaces. Selling Online opens up many opportunities for businesses both new and old. It's a great way to increase sales, especially if you already have a physical store.

3.7.6 Potential to Increase Company Profits:

As mentioned above, opening an Online extension of your store or moving your business solely Online are great ways to boost sales and potentially profits. Remember, just because SALES increase it does not necessarily mean that company PROFITS will increase also. Online businesses do have a greater chance of increasing sales and profits by opening up an e-Commerce store to sell the items they offer. Sales and profits are the lifeblood of any company, so it makes sense to increase

them where ever possible and whenever possible throughout the existence of your company. More sales, more profits, bigger budgets, etc.

3.7.7 Potential to Decrease Some Costs:

In addition to potentially increasing sales and profits, e-Business owners can also typically reduce the costs of running their business by moving it or expanding it into the Online world. e-Commerce stores can run with less employees including sales staff, customer service reps, order fulfillment staff and others. e-Businesses also do not need a physical location in order to stay operational, which can reduce costs related to building leases, phone bills, utility costs and other costs associated with running a brick-and-mortar storefront.

3.7.8 Expands Geographical or Customer Reach:

As mentioned, owning an e-Commerce business typically means no limits as to who and where you can sell your products. Some countries outside the United States have additional regulations, licensing requirements or currency differences, but generally you will not be limited on the customers you can reach out to. Physical storefronts are limited to the city in which they are located, Online businesses aren't limited unless you put geographical limits in place. At the very least, you should consider targeting U.S. buyers, but also consider, Canada, UK, Australia and others. Sell to anyone, anywhere, anytime!

3.7.9 Allows for Smaller Market or Niche Targeting:

Although your customer reach may expand beyond your local area, you may only wish to target smaller consumer markets and buyer niches for your e-Commerce products. Owning an Online store gives the merchant much control over who they target and reach out to notify about the items for sale in their store. Currently, you can target women, men, a generation of users, a particular race and many more smaller niche markets. This is typically done by placing keywords that those niche markets use on a regular basis when shopping for the items you offer.

3.7.10 Allows for Easier Delivery of Information:

An Online store and Web brochure are great ways to deliver and display information about your company and the products you sell. With an Online presence your customers will have direct access to product information, company information, specials, promotions, real time data and much more information that they can easily find just by visiting your site day or night. Not only does it benefit your customers, but it's also generally easier for merchants to update their site rather than break down an in store display and put up another for the next event. It saves both your customers and you precious time and can help you to plan more updates or better sales as it will be much easier for you to update and take down.

4.0 Summary

By supporting transformation of business applications to an e-Business model while minimizing disruption, this platform has a unique position. It has business proven values reliability, security, scalability, low cost of ownership, logical partitioning, service, and support. While strategy defines how the game is played, finance lays out the rules of scoring. Although the underlying rules of economics and finance did not change, the rules of thumb and practices in the new economy look very different to those who have been in business for decades. In this unit among other things discussed how companies are:

- Creating Market Value
- Using Market Capitalization to Create Acquisition Currency
- Valuation Strategies: Assets, Earnings, Revenues, Losses, or Eyeballs.
- Venture Capital.
- IPO
- Investment Strategies e-Business system offers the following general advantages: many sales and service opportunities not otherwise available- 24/7; direct communication, global accessibility- can expand user base to world; smoothes distribution of resources; reduced media breaks-data enters system in the same form that it is needed for use. Promotes automation and integration-whole process is computerized.

5.0 Conclusion

This unit has been used for e-Business requirement for success, thus the reason for growth of e-Business entrepreneurs were highlighted and well as the realities of e-Business. In the next unit you will be looking at e-Business finances. This unit also examined the finances of e-Business. It is believed that strategy defines how the game is played, finance lays out the rules of scoring. In this unit you gone through reasons for online-generating visibility: a cheap way for firms to be seen far and wide, no reproduction costs. Online responsiveness 24hr/day service, instant, self service and use of automation to offer personalized service and content. Bottom line is that those that do not go online will surely die out.

6.0 Teacher Marked Assignments

1. List the six requirements considered essential to e-Business success.
2. State the indicators of e-Business applications

3. Outline and explain the top advantages of e-Business application platform delivers today.
4. What are the reasons advanced for the investors preference for capital gains over dividends.
5. List the lessons from the experience of Dot-Com crash.
6. Explain the following terms: Venture Capital, IPO Valuation Strategies: Assets, Earnings, Revenues, Losses
7. List and discuss the benefits of e-Commerce and e-Business.

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MODULE 3: GUIDE FOR BUILDING E-BUSINESS SITES

UNIT 1: e-Business Modeling

UNIT 2: e-Business evolution phases

UNIT 3: e-Business Project Management

UNIT 4: Application Service Providers

UNIT 1: The e-Business Modeling

Table of Content

1.0 Introduction

0.0 Objectives

1.0 Main Content

3.1 Why is UML important?

3.2 Modeling Use case diagrams

3.2.1 Class diagrams

3.2.2 Object diagrams

3.2.3 Sequence diagrams

3.2.4 Collaboration diagrams

3.2.5 Statechart diagrams

3.2.6 Activity diagrams

3.2.7 Component diagrams

3.2.8 Deployment diagrams

3.3 UML Tools

4.0 Summary

5.0 Conclusion

6.0 Tutor-Marked Assignments

7.0 References/Further Reading

1.0 Introduction

The heart of object-oriented problem solving is the construction of a model. The model abstracts the essential details of the underlying problem from its usually complicated real world. Several modeling tools are wrapped under the heading of the UML™, which stands for Unified Modeling Language™. The purpose of this unit is to present important highlights of the UML.

2.0 Objectives

At the end of this unit you will be able to identify and discuss the UML nine kinds of modeling diagrams:

- Use case diagrams
- Class diagrams
- Object diagrams
- Sequence diagrams
- Collaboration diagrams
- Statechart diagrams
- Activity diagrams
- Component diagrams
- Deployment diagrams
- Understand e-Business evolution phase

3.0 Main Content

3.1 Why is UML important?

Builders use the designs to create buildings. The more complicated the building, the more critical the communication between architect and builder. Blueprints are the standard graphical language that both architects and builders must learn as part of their trade.

Writing software is not unlike constructing a building. The more complicated the underlying system, the more critical the communication among everyone involved in creating and deploying the software. In the past decade, the UML has emerged as the software blueprint language for analysts, designers, and programmers alike. It is now part of the software trade. The UML gives everyone from business analyst to designer to programmer a common vocabulary to talk about software design.

The UML is applicable to object-oriented problem solving. Anyone interested in learning UML must be familiar with the underlying tenet of object-oriented problem solving -- it all begins with the construction of a model. A model is an abstraction of the underlying problem. The domain is the actual world from which the problem comes.

3.2 Modeling

Models consist of objects that interact by sending each other messages. Think of an object as "alive." Objects have things they know (attributes) and things they can do (behaviors or operations). The values of an object's attributes determine its state.

Classes are the "blueprints" for objects. A class wraps attributes (data) and behaviors (methods or functions) into a single distinct entity. Objects are instances of classes.

3.2.1 Use case diagrams

Use case diagrams describe what a system does from the standpoint of an external observer. The emphasis is on *what* a system does rather than *how*.

Use case diagrams are closely connected to scenarios. A scenario is an example of what happens when someone interacts with the system. Here is a scenario for a medical clinic.

"A patient calls the clinic to make an appointment for a yearly checkup. The receptionist finds the nearest empty time slot in the appointment book and schedules the appointment for that time slot. "

A use case is a summary of scenarios for a single task or goal. An actor is who or what initiates the events involved in that task. Actors are simply roles that people or objects play. The picture below is a Make Appointment use case for the medical clinic. The actor is a Patient. The connection between actor and use case is a communication association.



Figure 1

Actors are stick figures. Use cases are ovals. Communications are lines that link actors to use cases.

A use case diagram is a collection of actors, use cases, and their communications. We've put Make Appointment as part of a diagram with four actors and four use cases. Notice that a single use case can have multiple actors.

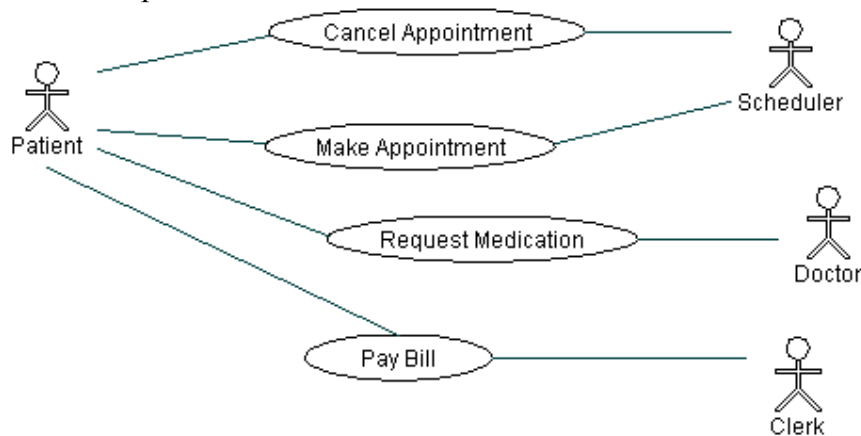


Figure 2

Use case diagrams are helpful in three areas.

determining features (requirements). New use cases often generate new requirements as the system is analyzed and the design takes shape.

communicating with clients. Their notational simplicity makes use case diagrams a good way for developers to communicate with clients.

generating test cases. The collection of scenarios for a use case may suggest a suite of test cases for those scenarios.

3.2.2 Class diagrams

A Class diagram gives an overview of a system by showing its classes and the relationships among them. Class diagrams are static -- they display what interacts but not what happens when they do interact.

The class diagram below models a customer order from a retail catalog. The central class is the Order. Associated with it are the Customer making the purchase and the Payment. A Payment is one of three kinds:

Cash, Check, or Credit. The order contains OrderDetails (line items), each with its associated Item.

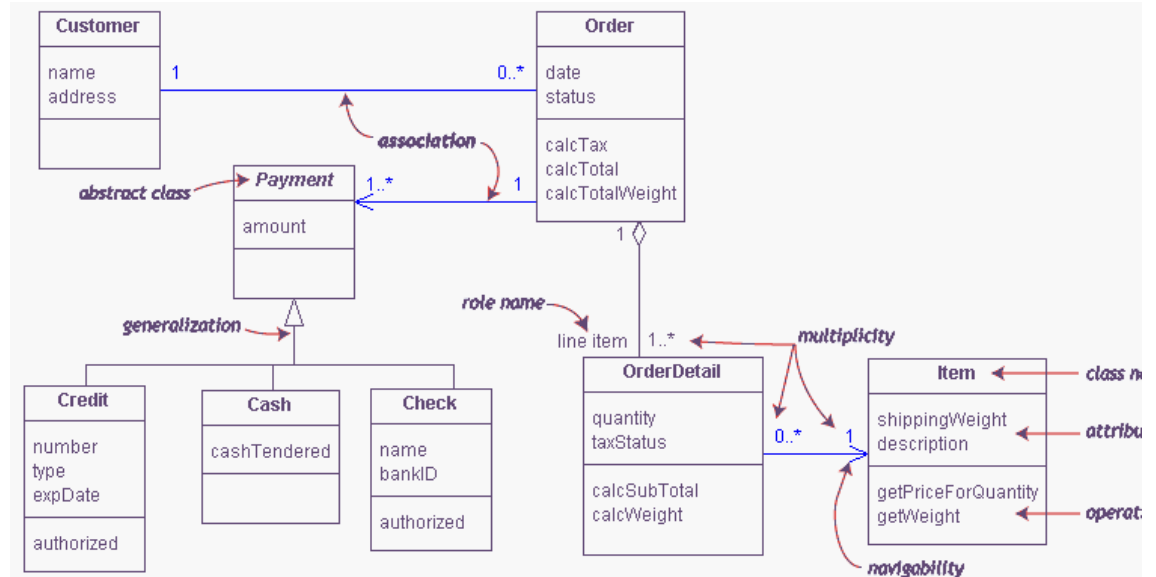


Figure 3

UML class notation is a rectangle divided into three parts: class name, attributes, and operations. Names of abstract classes, such as Payment, are in italics. Relationships between classes are the connecting links.

Our class diagram has three kinds of relationships.

association -- a relationship between instances of the two classes. There is an association between two classes if an instance of one class must know about the other in order to perform its work. In a diagram, an association is a link connecting two classes.

aggregation -- an association in which one class belongs to a collection. An aggregation has a diamond end pointing to the part containing the whole. In our diagram, Order has a collection of OrderDetails.

generalization -- an inheritance link indicating one class is a superclass of the other. A generalization has a triangle pointing to the superclass. Payment is a superclass of Cash, Check, and Credit.

An association has two ends. An end may have a role name to clarify the nature of the association. For example, an OrderDetail is a line item of each Order.

A navigability arrow on an association shows which direction the association can be traversed or queried. An OrderDetail can be queried about its Item, but not the other way around. The arrow also lets you know who "owns" the association's implementation; in this case, OrderDetail has an Item. Associations with no navigability arrows are bi-directional.

The multiplicity of an association end is the number of possible instances of the class associated with a single instance of the other end. Multiplicities are single numbers or ranges of numbers. In our example, there can be only one Customer for each Order, but a Customer can have any number of Orders.

This table gives the most common multiplicities.

Multiplicities	Meaning
0..1	zero or one instance. The notation $n . . m$ indicates n to m instances.
0..* or *	no limit on the number of instances (including none).
1	exactly one instance
1..*	at least one instance

Every class diagram has classes, associations, and multiplicities. Navigability and roles are optional items placed in a diagram to provide clarity.

Packages and object diagrams

To simplify complex class diagrams, you can group classes into packages. A package is a collection of logically related UML elements. The diagram below is a business model in which the classes are grouped into packages.

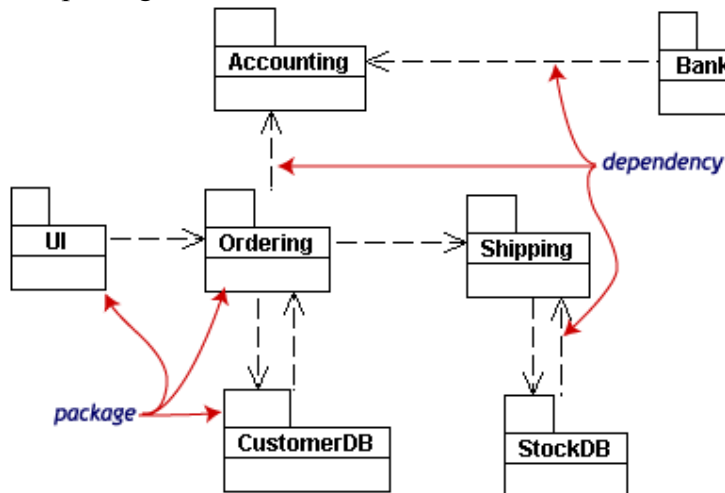


Figure 4

Packages appear as rectangles with small tabs at the top. The package name is on the tab or inside the rectangle. The dotted arrows are dependencies. One package depends on another if changes in the other could possibly force changes in the first.

3.2.3 Object Diagrams

Object diagrams show instances instead of classes. They are useful for explaining small pieces with complicated relationships, especially recursive relationships.

This small class diagram shows that a university Department can contain lots of other Departments.

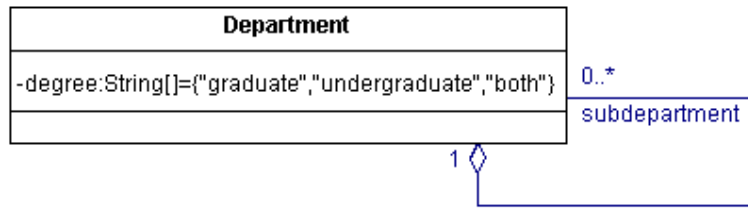


Figure 5

The object diagram below instantiates the class diagram, replacing it by a concrete example.

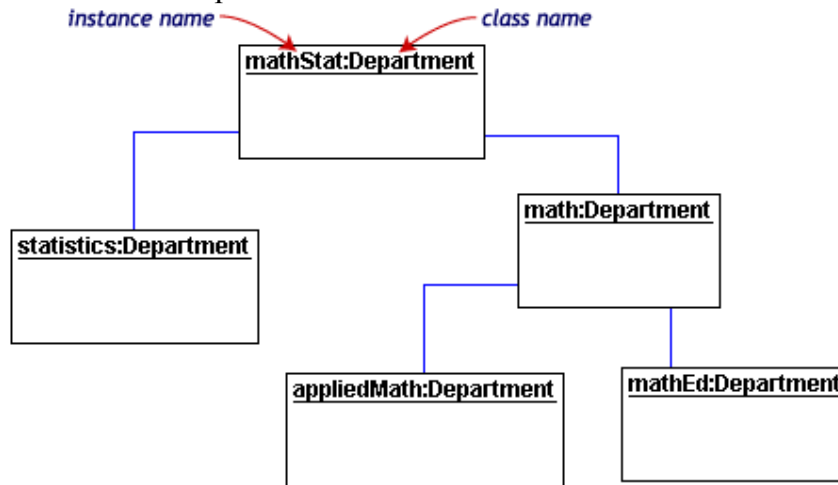


Figure 6

Each rectangle in the object diagram corresponds to a single instance. Instance names are underlined in UML diagrams. Class or instance names may be omitted from object diagrams as long as the diagram meaning is still clear.

3.2.4 Sequence diagrams

Class and object diagrams are static model views. Interaction diagrams are dynamic. They describe how objects collaborate.

A sequence diagram is an interaction diagram that details how operations are carried out -- what messages are sent and when. Sequence diagrams are organized according to time. The time progresses as you go down the page. The objects involved in the operation are listed from left to right according to when they take part in the message sequence.

Below is a sequence diagram for making a hotel reservation. The object initiating the sequence of messages is a Reservation window.

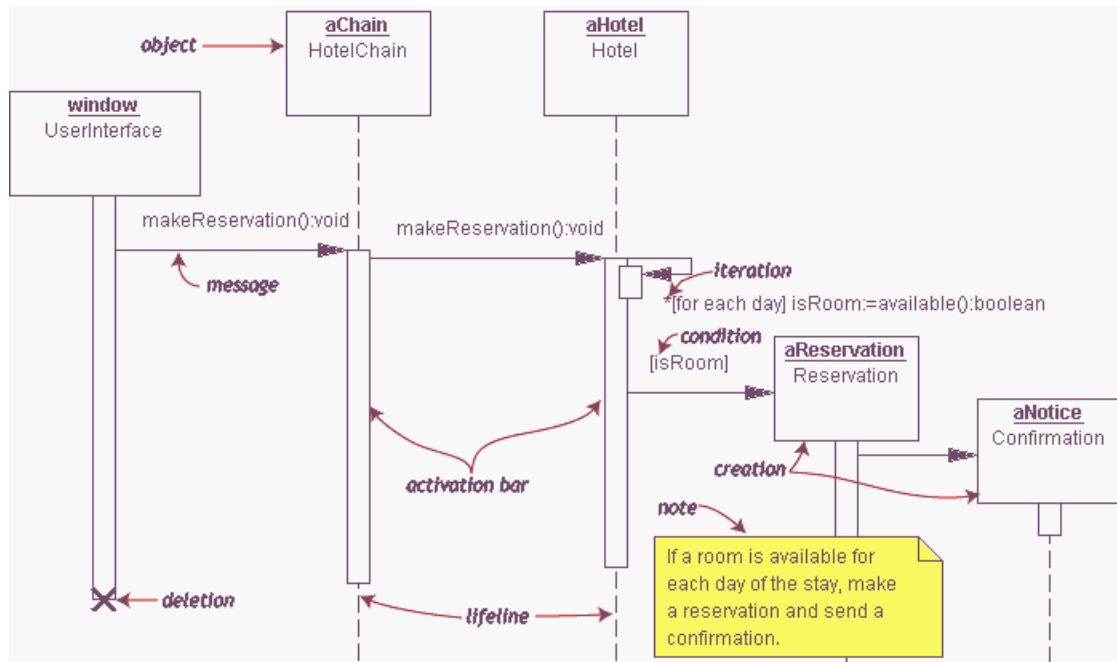


Figure 7

The Reservation window sends a `makeReservation()` message to a `HotelChain`. The `HotelChain` then sends a `makeReservation()` message to a `Hotel`. If the `Hotel` has available rooms, then it makes a `Reservation` and a `Confirmation`.

Each vertical dotted line is a lifeline, representing the time that an object exists. Each arrow is a message call. An arrow goes from the sender to the top of the activation bar of the message on the receiver's lifeline. The activation bar represents the duration of execution of the message.

In our diagram, the `Hotel` issues a self call to determine if a room is available. If so, then the `Hotel` creates a `Reservation` and a `Confirmation`. The asterisk on the self call means iteration (to make sure there is available room for each day of the stay in the hotel). The expression in square brackets, `[]`, is a condition.

The diagram has a clarifying note, which is text inside a dog-eared rectangle. Notes can be put into any kind of UML diagram.

3.2.5 Collaboration diagrams

Collaboration diagrams are also interaction diagrams. They convey the same information as sequence diagrams, but they focus on object roles instead of the times that messages are sent. In a sequence diagram, object roles are the vertices and messages are the connecting links.

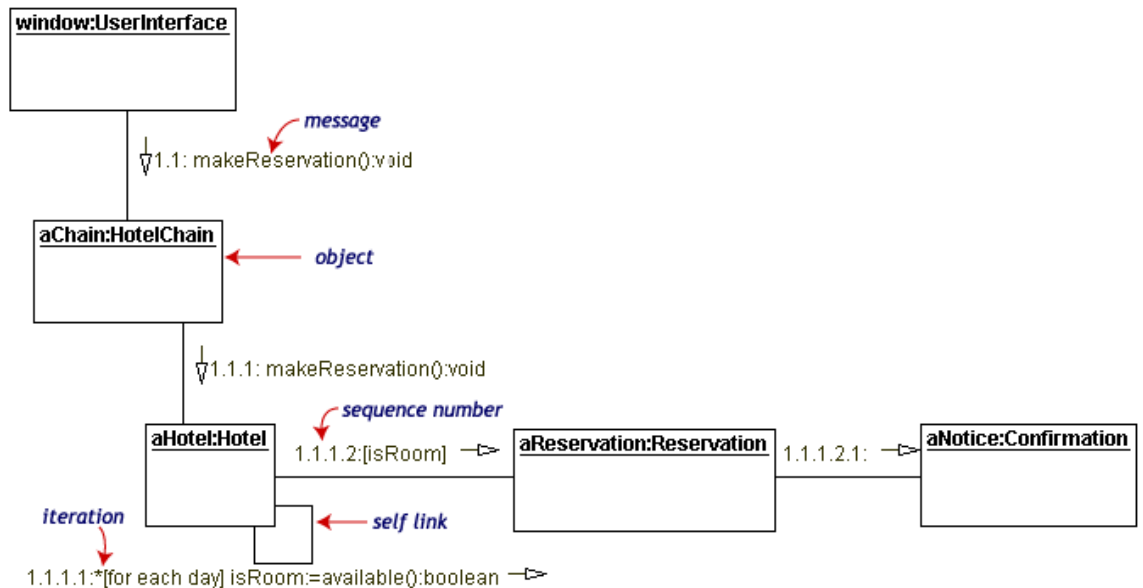


Figure 8

The object-role rectangles are labeled with either class or object names (or both). Class names are preceded by colons (:).

Each message in a collaboration diagram has a sequence number. The top-level message is numbered 1. Messages at the same level (sent during the same call) have the same decimal prefix but suffixes of 1, 2, etc. according to when they occur.

3.2.6 Statechart diagrams

Objects have behaviors and state. The state of an object depends on its current activity or condition. A statechart diagram shows the possible states of the object and the transitions that cause a change in state.

Our example diagram models the login part of an online banking system. Logging in consists of entering a valid social security number and personal id number, then submitting the information for validation.

Logging in can be factored into four non-overlapping states: Getting SSN, Getting PIN, Validating, and Rejecting. From each state comes a complete set of transitions that determine the subsequent state.

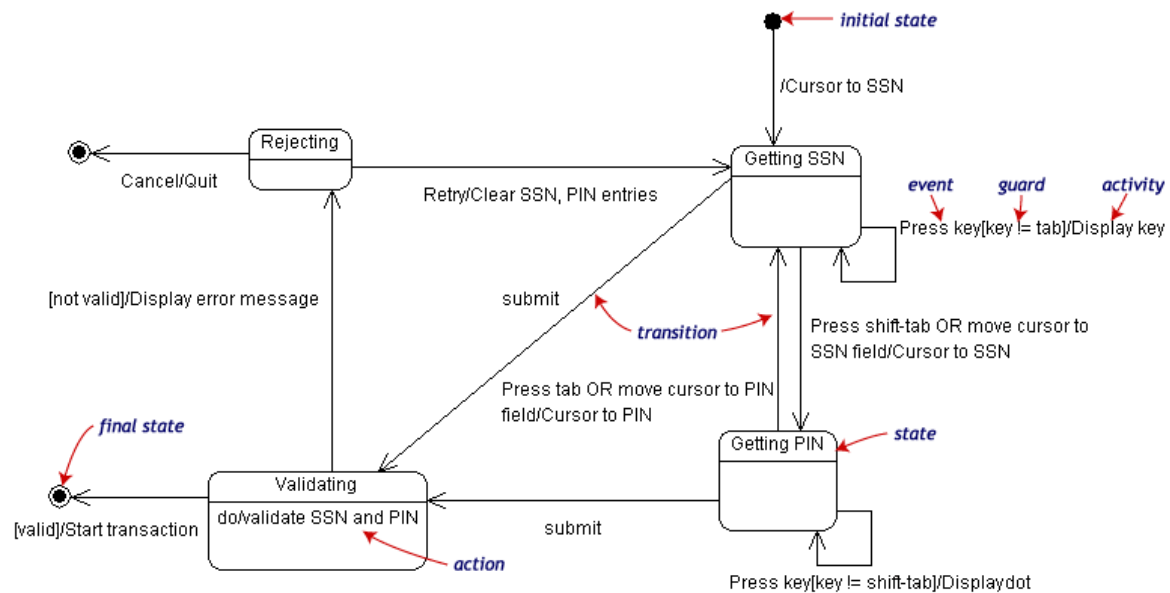


Figure 9

States are rounded rectangles. Transitions are arrows from one state to another. Events or conditions that trigger transitions are written beside the arrows. Our diagram has two self-transition, one on Getting SSN and another on Getting PIN.

The initial state (black circle) is a dummy to start the action. Final states are also dummy states that terminate the action.

The action that occurs as a result of an event or condition is expressed in the form /action. While in its Validating state, the object does not wait for an outside event to trigger a transition. Instead, it performs an activity. The result of that activity determines its subsequent state.

3.2.7 Activity diagrams

An activity diagram is essentially a fancy flowchart. Activity diagrams and statechart diagrams are related. While a statechart diagram focuses attention on an object undergoing a process (or on a process as an object), an activity diagram focuses on the flow of activities involved in a single process. The activity diagram shows the how those activities depend on one another.

For our example, we used the following process.

"Withdraw money from a bank account through an ATM."

The three involved classes (people, etc.) of the activity are Customer, ATM, and Bank. The process begins at the black start circle at the top and ends at the concentric white/black stop circles at the bottom. The activities are rounded rectangles.

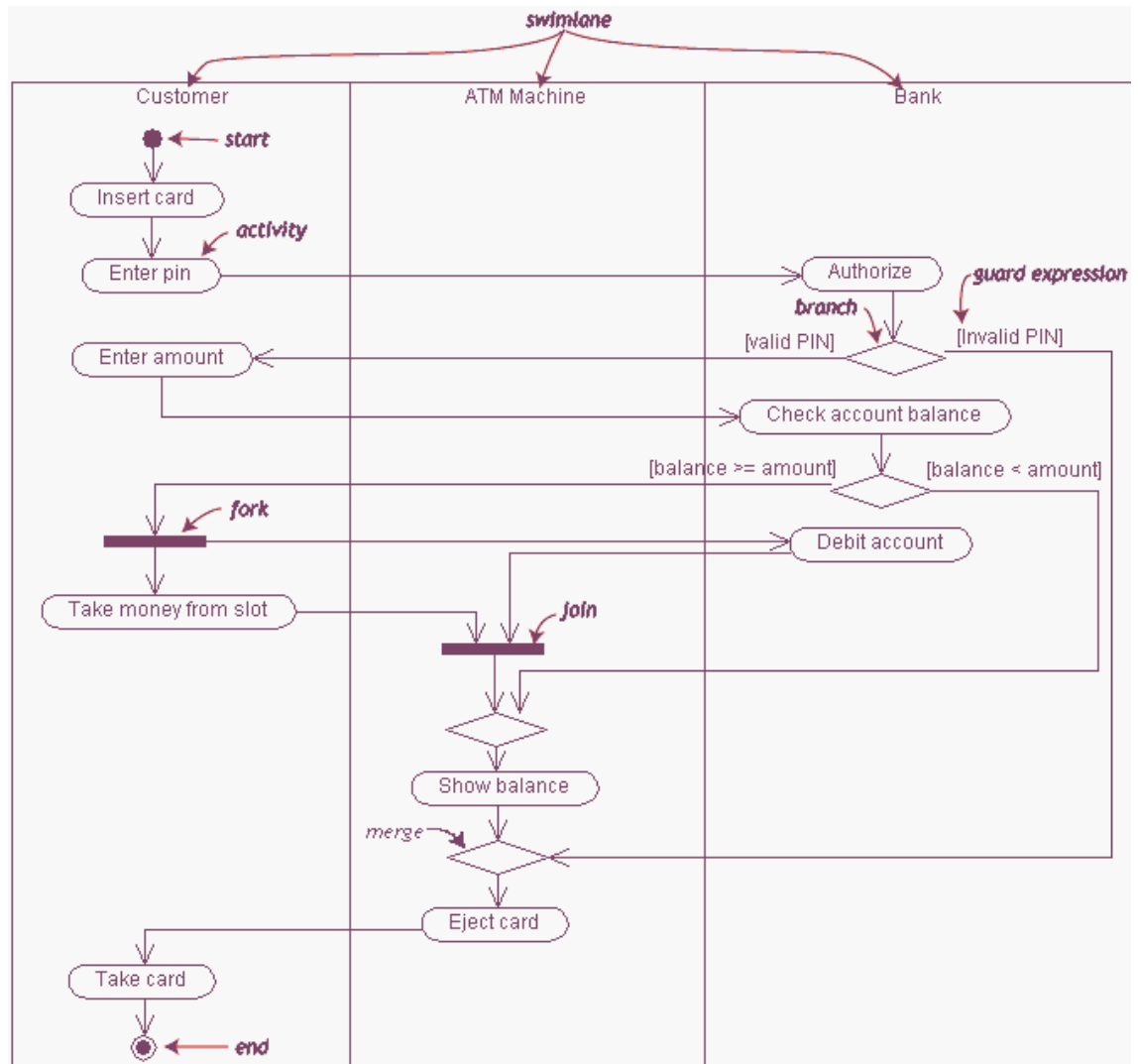


Figure 10

Activity diagrams can be divided into object swimlanes that determine which object is responsible for which activity. A single transition comes out of each activity, connecting it to the next activity.

A transition may branch into two or more mutually exclusive transitions. Guard expressions (inside []) label the transitions coming out of a branch. A branch and its subsequent merge marking the end of the branch appear in the diagram as hollow diamonds.

A transition may fork into two or more parallel activities. The fork and the subsequent join of the threads coming out of the fork appear in the diagram as solid bars.

3.2.8 Component and deployment diagrams

A component is a code module. Component diagrams are physical analogs of class diagram. Deployment diagrams show the physical configurations of software and hardware.

The following deployment diagram shows the relationships among software and hardware components involved in real estate transactions.

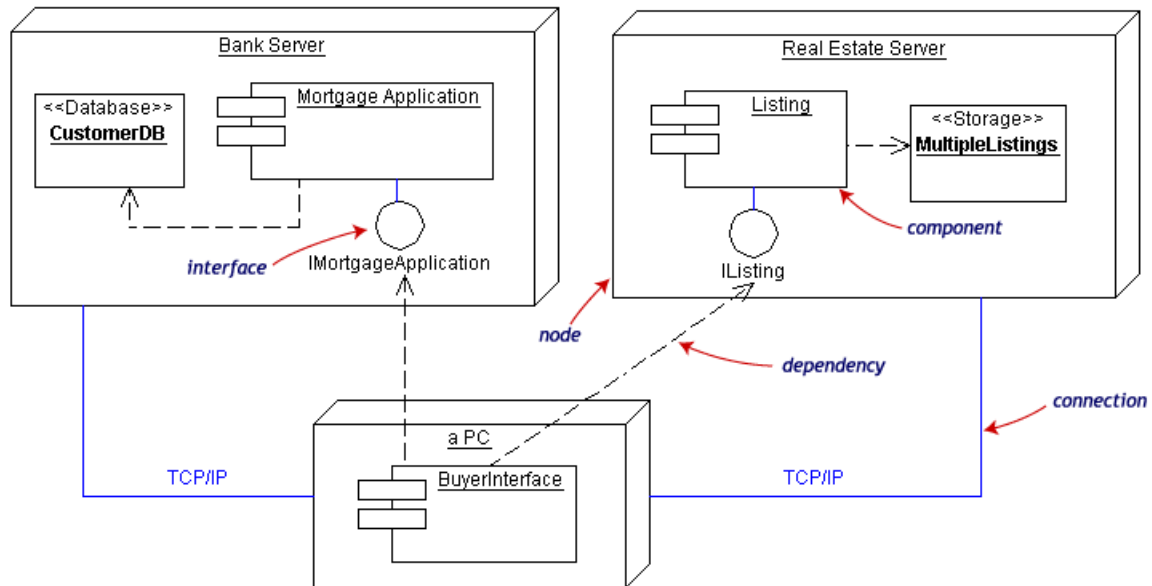


Figure 11

The physical hardware is made up of nodes. Each component belongs on a node. Components are shown as rectangles with two tabs at the upper left.

3.3 UML Tools

Creating and modifying UML diagrams can be labor and time intensive. But in constructing the diagrams for this expose, we cut our efforts far short using Borland Together ControlCenter, which is the premier UML modeling tool.

Borland ControlCenter always keeps diagrams and code in sync. But it's much more than a mere modeling tool. Borland ControlCenter accelerates development for teams using Java and leading application servers to build e-Business and enterprise applications. Borland ControlCenter also supports teams using C++ and IDL, delivering wider coverage and support for large development organizations. Borland's "platform and building blocks™" architecture delivers deep integration across all aspects of software development: model-pattern-edit-test-compile-debug-version-doc-metric-audit-provision-assemble-deploy-run, leading to an environment in which business experts, modelers, and developers find they can work more productively, increasing the competitive value of what they build and reducing time to market.

4.0 Summary

The unit looked at the nine kinds of modeling diagrams that could be of much import in e-Business modeling.

5.0 Conclusion

At the centre of the UML are its nine kinds of modeling diagram which we describe as: Use case diagrams, Class diagrams, Object diagrams, Sequence diagrams, Collaboration diagrams, Statechart diagrams, Activity diagrams, Component diagrams, Deployment diagrams

6.0 Tutor-Marked Assignments

1. List the nine kinds of modeling diagrams and illustrate any five of them.

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UNIT 2: The e-Business Evolution Phases**Table of Content**

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 The e-Business evolution phases: Description
 - 3.1.1 Phase 1: Web presence
 - 3.1.2 Phase 2: Dynamic site
 - 3.1.3 Phase 3: Transactional site
 - 3.2 The e-Business evolution phases: Technology view
 - 3.2.1 Web presence
 - 3.2.2 Dynamic site
 - 3.2.3 Transactional site
 - 3.3 The e-Business evolution phases: Business view
 - 3.3.1 Web presence
 - 3.3.2 Dynamic site
 - 3.3.3 Transactional site
 - 3.4 The e-Business evolution phases: Products view
 - 3.4.1 Web presence
 - 3.4.2 Dynamic site
 - 3.4.3 Transactional site
- 4.0 Summary
- 5.0 Conclusion
- 6.0 Tutor-Marked Assignments
- 7.0 References/Further Reading

1.0 Introduction

This unit describes each phase of the e-Business evolution in more detail. To understand the difference between the different phases in more practical terms, we use the imaginary company of All Rights *Investment Firm* for an example.

2.0 Objectives

At the end of the unit you will be able to identify and explain: The e-Business evolution phases:

Technology view

Description view

Business view

Product view

3.0 Main Content

3.1 The e-Business evolution phases: Description

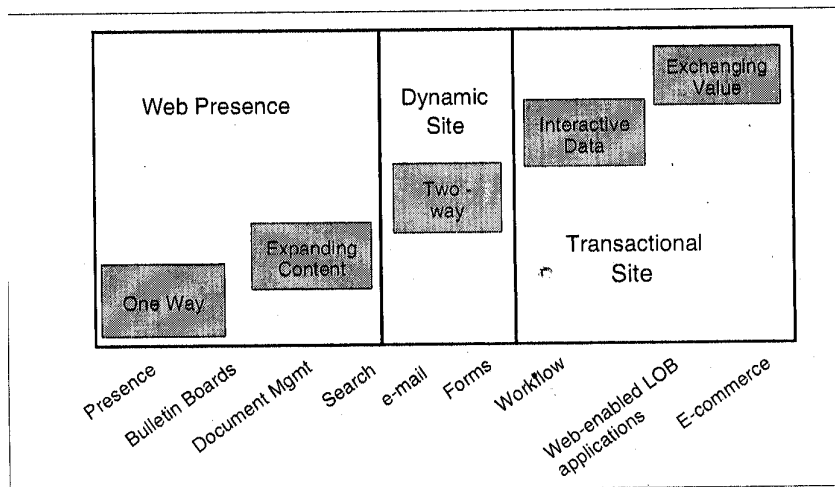


Figure 1

3.1.1 Phase 1: Web presence

As the Web continually grows and quickly becomes a place where companies must have presence to survive in today's competitive world, your Web site gains importance as a company information resource. The first step, or phase, is Web presence. This involves presenting marketing, product, and company information on a relatively static HTML home page or Web site.

Web presence is an easy and low-cost way to distribute information about your business. Establish a Web presence and millions of people around the world are your potential audience. In addition, the Internet offers:

- **Speed:** Instantly deliver information anywhere in the world.
- **Availability:** The Web is open for business 24 hours a day, 7 days a week.

- **Scope:** Send and receive information to and from anyone, anywhere, and anytime so long as a connection exists.

As the Internet has evolved and forces shape individual businesses, information access requirements also evolve. When this happens, Web presence typically moves toward providing dynamic data.

An example: All Rights Investment Firm

An investment firm publishes brochures, contact information, services offered, and other marketing related information. Without the Internet, the customer interacts with the company using the telephone or meetings. Account information is mailed or accessed by a telephony application and trades are done by telephone. The IT manager of the All Rights Investment Firm started this exercise by asking, “Where is my data that I want to make available to my customers?”

3.1.2 Phase 2: Dynamic site

Dynamic data sites contain user-defined information that is extracted from business systems, as per the users request. The user, however, does not add, delete, or edit the business data. Nor does the user complete a transaction. Customers are satisfied with this improved method to access data that traditionally was provided by call centers. These solutions are often seen in business-to-business applications and consumer self-service Web sites.

An example: All Rights Investment Firm

The firm can start to offer account information on a Web site where customers can login and view the current balance based on that particular day’s trading. Customers still place orders by phone.

3.1.3 Phase 3: Transactional site

The final phase in this e-Business process is to have a transactional site. A transactional site allows users to add, delete, or edit data on business systems and to complete transactions. This is known as *e-commerce*. This type of site is growing very quickly for business-to-business and business-to-consumer solutions as the demand for online commerce by businesses and consumers increases.

An example: All Rights Investment Firm

The firm sets up an application to allow customers to trade various financial instruments through their firm. This can replace placing orders by telephone.

3.2 The e-Business evolution phases: Technology view

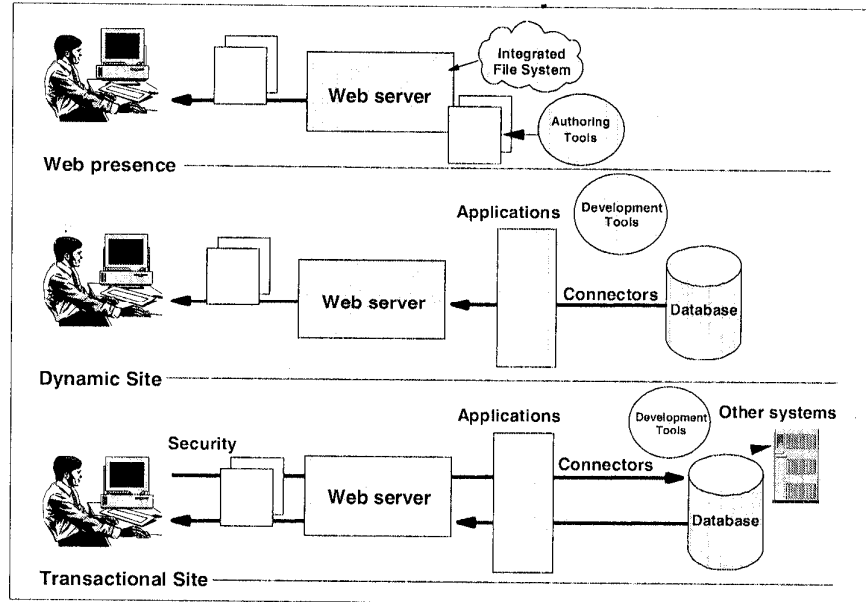


Figure 2

3.2.1 Web presence: Users interact only with a Web server, and the information presented is static. Technically this requires the lowest level of security and no integration with host systems. Any information published is developed and deployed manually.

3.2.2 Dynamic site: Users interact with databases, and the Web server and the users can select and determine the information presented to them. This solution requires greater security, especially in communications, usually encryption or digital certificates. The business must now manage access to host data and the application through which the customer accesses it.

3.2.3 Transactional site: Users interact with host business applications and processes to add, delete, or update information and to complete transactions (buying and selling). Security requirements are highest with communication and transaction security required (SET and so on). Transactions now occur, and the business needs to manage a variety of systems management and integration issues.

3.3 The e-Business evolution phases: Business view

This section portrays the business view of the e-Business phase for each technology component..

3.3.1 Web presence

The first phase, Web presence, involves your company publishing static Web pages onto the World Wide Web. As a result, your company has a Web site and a presence. Figure 11 shows how a business can use Web presence technology.

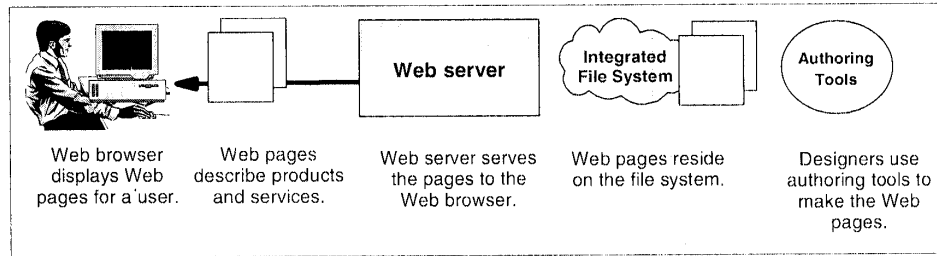


Figure 3. Business view of the Web presence phase of e-Business adoption

3.3.2 Dynamic site

The second phase, dynamic site, turns the static information on your site into dynamic information. The Web server retrieves information from databases to display on a client machine. Figure 15 shows how a business can use dynamic site technology.

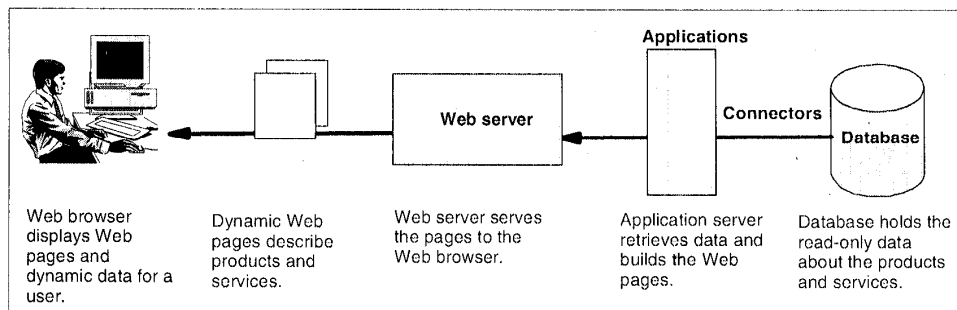


Figure 4. Business view of the dynamic site phase of e-Business adoption

3.3.3 Transactional site

The third phase, transactional site, allows people to interact with the information presented on the Web pages. Therefore, data on your inhouse system is changed to reflect their interaction. Figure 5 shows how a business can use the transactional site technology.

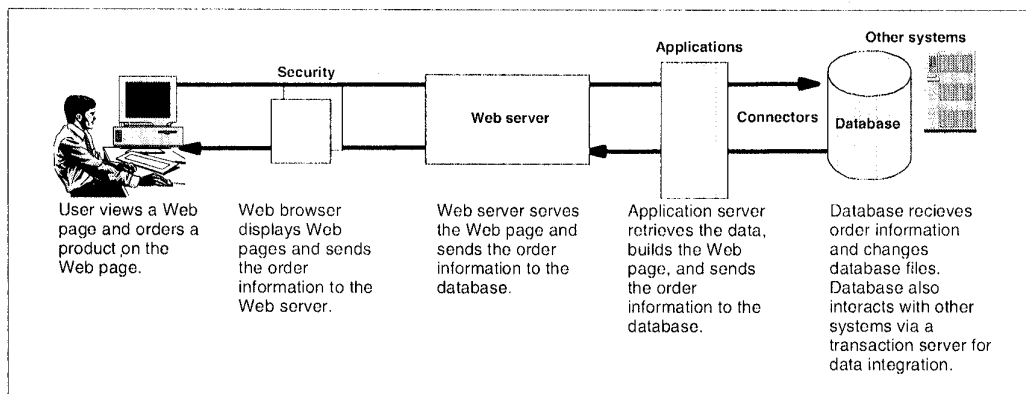


Figure 5. Business overview of the transactional site phase of e-Business adoption

3.4 The e-Business evolution phases: Products view

The three views shown in this section combine the technology with the products that support it.

3.4.1 Web presence

The Web presence stage is perhaps the simplest in regard to products. To establish a presence on the Web, your company needs a Web server that can retrieve files from an integrated file system. Your users have the client software, a Web browser, to view the pages you place on the Web server. Figure 17 shows which products support Web presence technology.

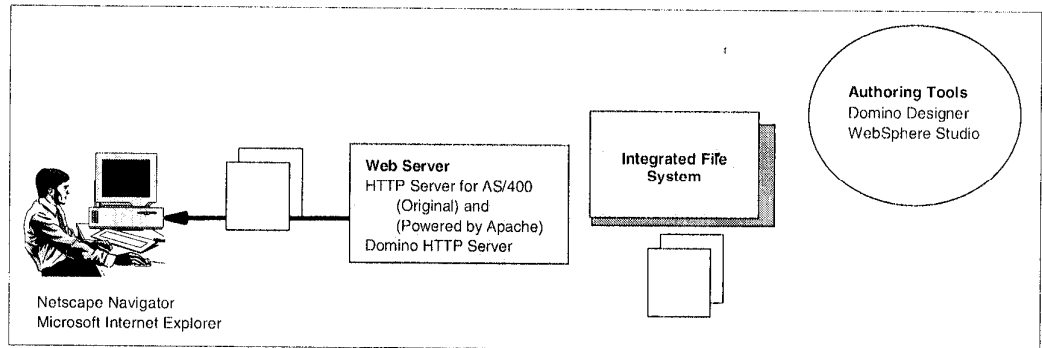


Figure 6. Product view of the Web presence phase of e-Business adoption

At its simplest, a Web site serves static Web pages. “Static” does not imply that the information on the Web site is unchanging. You must constantly refresh your Web content to keep your visitors coming back. Rather, “static” means that the content of what the visitor sees is not changed by user interaction. It's like reading a newsunit. The page that you see is the same as the page that you see a few minutes later. But tomorrow, brand new newsunit pages are available. In simple terms, the role of the HTTP server is to receive requests from browsers for Web pages, locate the pages, and send them to the requesters. The browser communicates with the HTTP server using URLs that contain the location of the pages that the user wants. To process that URL, the HTTP server uses a set of directives that the site administrator has created. The directives may have some mapping to tie a URL to the real directory where the page is located (to isolate your Web site design and the user from your underlying storage structure). The directives may also have protection information that requires user ID and password for certain information-sensitive Web pages.

3.4.2 Dynamic site

The nature of a dynamic site is that it changes. Over time, organizations have seen the benefit of interacting with browser users by sending and receiving data. These interactions range from the simplest transaction, such as collecting the name and address of a browser user who wants to receive a catalog, to displaying order status and actually processing orders. In general, these interactions start with a form: a Web page that

contains input-capable fields and push buttons (like function keys). The information that a user views through their Web server changes based on the information that lies in the database. Figure 7 shows which products support a dynamic site technology.

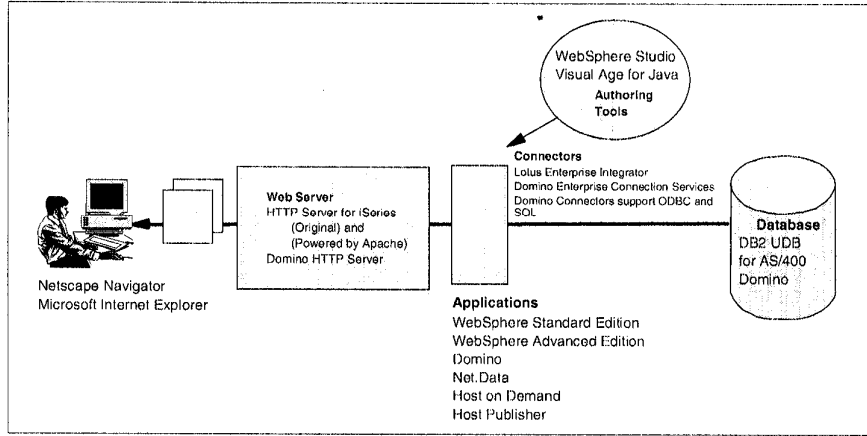


Figure 7. Product view of the dynamic site phase of e-Business adoption

3.4.3 Transactional site

With a transactional site, the user can interact with information, for example, order a product or fill out a form. Applications and connectors ensure that database information reflect these changes and the user sees the correct information over the Web browser. Figure 19 shows the products that support a transactional site technology.

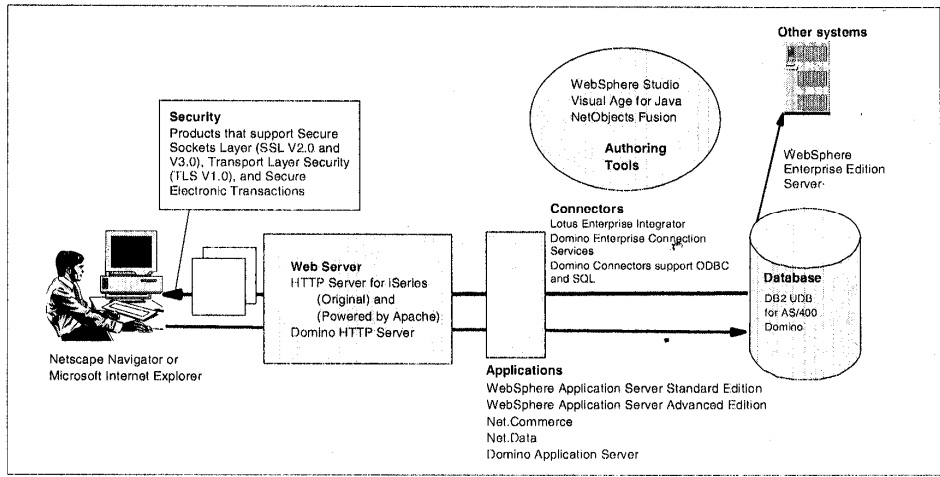


Figure 8. Product overview of the transactional site phase of e-Business adoption

IBM provides numerous e-Business products for customers to build, run, leverage, and transform their businesses. Depending on which phase in the e-Business development model you are in, different tools and technologies are appropriate.

4.0 Summary

The unit looked at the e-Business evolution phases with a typical example provided by IBM.

5.0 Conclusion

The e-Business evolution phases:

Technology view

Description view

Business view

Product view

6.0 Tutor-Marked Assignments

Discuss in detail the e-Business evolution phases.

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UNIT 3: E-Business Project Management:

Table of Content

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 e-Business Development
 - 3.2 Project Planning
 - 3.3 e-Business Project vs Conventional Project
 - 3.4 Attributes making e-business project planning special

3.5 Project Risks

3.6. Planning

- 3.6.1 Technical Planning
- 3.6.2 Web Site Specifications
- 3.6.3 Scheduling
- 3.6.4 Network Modeling
- 3.6.5 Human Factors

3.7 Market Response

- 3.7.1 Economic Analysis
- 3.7.2 Continual Change
- 3.7.3 Globalization

4.0 Summary

5.0 Conclusion

6.0 Tutor-Marked Assignments

7.0 References/Further Reading

1.0 Introduction

This unit studies the strategic planning process of an electronic business project. In today's fast growing demand of electronic transactions, with more people accessing the internet worldwide, online shopping becomes an increasingly profitable but risky business. Selling online becomes a very competitive business and time is a critical factor in launching a web site for business. This unit identifies how risks can be minimized by proper planning and how planning is implemented. It also describes how to detect any changes in the marketplace so that effective measures can be made to avoid dropping out from competition. The emphasis is on the planning tactics, particularly in ensuring accurate tracking that is specific to the e-business start up process.

2.0 Objectives

At the end of the unit you will be able to:

Discuss project planning

Compare and contrast e-Business project and conventional project management

Identify unique attributes of e-business project planning

Understand e-Business project planning

3.0 Main Content

3.1 e-Business Development

In the past few years, ".com" establishments have flooded the information superhighway and there is a common goal to change the way consumers shop. The advantage brought about by e-business is obvious. The cost of running a business can be driven down significantly because location is no longer a concern, with the added

advantage of not having to demonstrate physical products and to keep a large quantities of unsold stock. Consumers, on the other hand, are reluctant to change the way they shop for many reasons as discussed in the later part of this unit. To succeed in the competitive market of e-business, a well-structured web site becomes a vital trading tool. The web site itself can be very complex, depending on its functions, features, and more importantly, the level of security provided to customers. The worst scenario is to make the web site unnecessarily complicated that yields to undesired consequences such as incurring extra costs and making troubleshooting much more difficult. This is a consequence of not having a well-documented plan in place. A number of factors that can influence the effectiveness and quality of the web site have to be addressed.

3.2 Project Planning

Project planning identifies uncertainties associated with the project. In order to ensure that a business is not only reachable by potential customers, it is often made visually appealing and easy to obtain information. Providing a reliable web site for trading is essential to compete in the marketplace. Project planning is therefore an important step to work on. The commencement of a project takes off from gathering requirements that lead to a complete understanding of what the project entails, and a drafting of the detailed action plan of the e-business web site. It finishes with an end product that meets the objectives of the plan as a result of successful project execution. In between there are many factors that may affect the project such as:

time,
risks,
financial resources,
human resources and
access to certain necessary materials.

All these are potential impediments of a project and must therefore be managed to minimize disruptions to project execution. Project management can help forecast events that may affect the progress. Unexpected delay can lead to devastating consequences in today's aggressive e-business trading market. Other competitors can enter the market at any time and seize a portion of the market share. Inability of increasing customer base automatically leads to closure of business. Goods that are stocked up can become outdated and may have to be sold below cost.

Factors that may impact an e-business establishment as a result of time loss include:

- Technological obsolescence due to improvements in technology and performance
- Change in economic environments
- Change in consumer buying sentiments

- Change in legislative trade agreements
- Inappropriate management in risk prioritization
- Increase in operational costs

3. 3. E-BUSINESS PROJECT VS. CONVENTIONAL PROJECT MANAGEMENT

E-business, by itself, is a term used to describe conducting business electronically. The most generic description of e-business is trading on the internet, buying and selling products and services online.

There are three main categories of e-business functions:

company-to-company (or business-to-business, B2B),

company internal and

company-to-customer (or business-to-consumer, B2C), the latter being the most common means of internet trading. In an e-business trading environment

between business and customer transactions, customers obtain goods and services information from the internet and they place orders by navigating on the internet and making payment electronically through the internet by electronic cash or sending credit card payment authorization online. Often products and services can be delivered without physical interaction.

3.4 Attributes making e-business project planning special

Although e-business projects share many common attributes with conventional software engineering development projects, Brooks identified three distinctive differences between conventional engineering development projects and other engineering projects:

Invisibility: There is no physical object to work with, the heart of the e-business web site consists of program codes. Observation of behavior is the only way to visualize the system. The response of a simple system as shown in Figure 1, $h(t)$, can only be deduced from both known input $x(t)$ and output $y(t)$. In an e-business trading system, its output may not be apparent and is subject to changes due to various conditions.

The system response can therefore be difficult to predict in most cases.

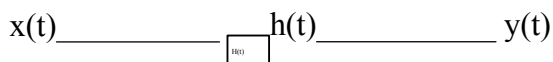


Figure 1. *A simple system, characterized by $h(t)$, that generates an output when an input is fed.*

Complexity: Software products often contain more complexity than engineering works, the structure of an e-business web site can be complex with many links between various parts of the site.

Flexibility: Any piece of software is made to adapt to change of its associated components, hardware, organizational structure, etc. An e-business project must therefore be developed in such a flexible way that it can adapt to any change in the operating environment. The implication

is that an e-business project is likely to encounter constant change and these changes may lead to major consequences.

Conventional software project management techniques establish a foundation; yet there are limitations and divergence that exist and must be taken into consideration.

3.5 Project Risks

Like any other engineering projects, there is no escape from risks when implementing an e-business project. First, due to the fast growing market environments, certain technology and related products may become obsolete very quickly. There are many external factors, often uncontrollable, such as economic recession, political instability, change in government regulations and regional trade agreements. All these may have significant impact to any project developments. Certain risks are inherent in an e-business project:

Inter-platform compatibility – certain technology may only be accessible by certain platforms. Thus, e-business web sites may be subject to certain limitation of features and performance.

Company restructuring – business alliances become increasingly more popular as they are often perceived to offer more effective modes of operation. Such company merger may impact the requirements and specifications of an e-business web site.

Security - data stored on the web site (web server) are not the only data that must be protected, all business transactions must also be protected in order to ensure that all transactions are carried out in a permissible manner. Security Electronic Transaction [2] is universally used in e-business. Security has, historically, been a major factor in e-business risk monitoring. Corporate networks commonly involve separation of an internet site for external trading and an company internal intranet site for sensitive company data.

Competition- there has been many innovative features offered by different operators. There are many web sites offering very similar or identical products and services. Customers in turn become the obvious key that distinguishes between success and failure.

Market saturation - the amount of business opportunities may not be proportional to the number of service providers on the market. Historically, the number of new trading establishments increases at a faster rate than the growth of online trading transactions. Risk transfer can serve as a means of risk reduction by offering a wider range of products and services so that business opportunities can be expanded.

System reliability - customers demand an easy-to-use and reliable system. While security issues are closely related to reliability, providing a service that is available at all times is a necessity to provide round-the-clock services to customers worldwide. E-business trading has made business dealing globally fast and simple. Contingency planning is useful since certain risks are unavoidable and it reduces the impact in the event that the system fails or needs to be shut down for maintenance.

3.6. PLANNING

An e-business project can be considered as a sub-task of software development project. An e-business project involves more than writing a piece of software.

The fundamental features of an e-business project includes all of the following factors:

Electronic Data Exchange (EDI): it allows electronic data exchange between an e-business web site with its suppliers, business partners and customers.

Security: data sent between an e-business web site and the outside world require a secure channel so that the risk of unauthorized acquisition of transaction data will be minimized or eliminated.

Human-Computer Interface (HCI): it is a tool that allows users to make use of an e-business web site. The user friendliness and reliability of HCI has direct impact on whether or not customers will use this site.

Response time: it measures how fast a business transaction can be performed by the system. When a user selects an option on the web site, one expects a fast and appropriate response from the site.

Graphics: it makes an e-business web site look appealing to its users, and its effective use can also improve the site's HCI. The business also needs to provide access to customer visiting via different means or platforms. These are all crucial components of any e-business project as they reflect upon whether the e-business web site can attract its target audience. With the importance of thorough planning described, e-business project planning is discussed next.

3.6.1 Technical Planning

The first component a project needs is a series of web pages that deliver concise and appealing information including product or service descriptions and how purchases can be made. It is therefore necessary to gather user requirements before the web site is designed. A feasibility study has to be conducted to ensure that all set objects can be made with available resources.

3.6.2 Web Site Specifications

The format of pages on the web site can take a large variety of choices and a standard blank page template can be organized. A flow chart records details of the overall web site. Figure 2 shows a typical flow chart for a simple e-business web site.

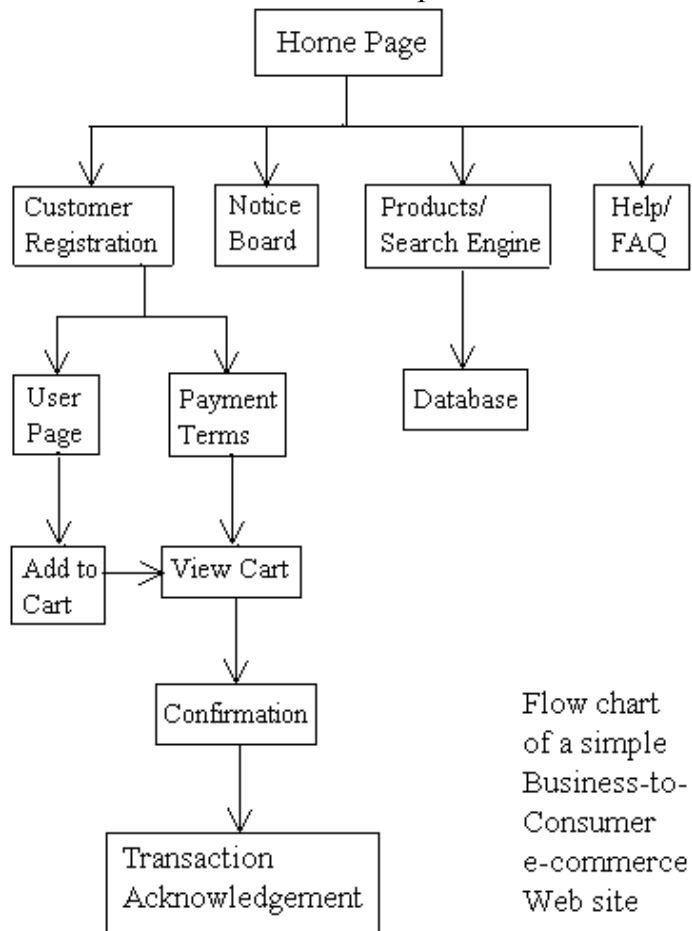
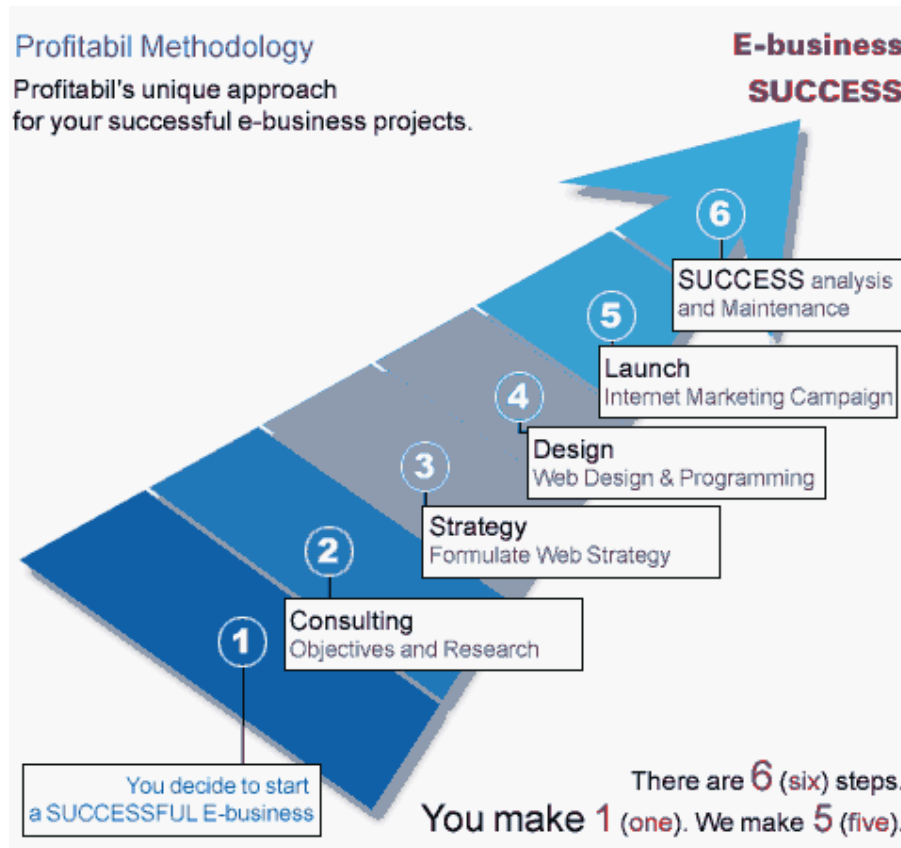


Figure 2 Flow chart of a basic e-business web site

The flow chart illustrated in Figure 2 serves as a tool for the project manager to visualize how the web site operates; hence planning and optimization can follow. The number of web pages that are necessary to provide the specified features as well as the complexity of each page can be deduced from this flow chart so that detailed planning on development can be performed.

3.6.3 Scheduling

A set of basic tasks can be identified for a B2C e-business project as summarized in Table 1. Table 1 provides a guideline for the project manager to fill in the details on the necessary tasks so that duration of the tasks can be construed and an estimated completion date can be deduced. Any necessary fine-tuning can be made to every detail of sub-tasks.



System Analysis
Design
Site Construction
System Integration
System Test
Final evaluation

Table 1. List of project implementation phases **Step 1** You decide to have more than a nice site... you decide to **start a successful E-Business**.

Step 2. Consulting: Objectives and Research

At the initial consultation we discuss with you the following topics so that we can fully understand your goals for your web site, your e-Business objective:

- Who you are and what your company is about.
- Defining the purpose of your site & e-Business (convey information, sell etc.)
- Information architecture, type of information and how much do you want to include
- Business needs analysis, defining the products offered, profiling your customers

Step 3. Formulate E-Business Strategy

Based on competitive research, **e-Business models** and case studies we formulate your web strategy and a Strategic Internet Marketing Plan.

Our planning coordinates all aspects of the website:

- Optimal product/ technology usage and system architecture
- Content plan for the website and site structure
- Product specification and project plan creation
- Unit prototype creation (Blueprint Creation)
- Web hosting, e-commerce and e-payment solutions
- Web promotion, internet marketing and advertising plans
- Solutions to generate customer databases & sales leads, to track the results

Step 4. Web Design and Programming

We build web sites that work for your business. Web sites that are fast, clean, graphically attractive and easily navigable. We make the technology as functional as possible in order that your clients can concentrate on your product and your business.

Step 5. Internet Marketing Campaign

Using the latest technology we optimize and place your site at the top of the search engine listings results. This service can bring thousands of potential clients to your site. Next we run marketing and promotion campaigns to maximize your web exposure to your target market.

Step 6. SUCCESS analysis and Maintenance

The need for analysis of your e-Business is vital. We monitor and analyze performance over a specified period of time. Profitability's analysts will help you to gain competitive advantage through better understanding of customer habits and preferences. Details include (but not limited):

- Traffic analysis, visitor profiles, how visitors came to your site
- Results of web promotion campaigns
- Keywords bringing qualified visitors to your site
- Sales analysis

Based on these analysis we will continue to optimize your e-Business. We don't create your site and then abandon you. Our web site maintenance includes: updating content, product information, price lists, incorporating new technologies and new promotion and sales techniques. If required, we train your staff to ensure the integration of your e-Business solution into your corporate environment.

A common methodology used by project managers for a wide range of development projects is to draw a Gantt chart listing all the activities involved in the project. It helps the manager to keep track of any progress made, as well as task dependencies. An accurate estimate of timing can therefore be attained at the planning phase. Control plan enables recognition of any possible unexpected deviations that may take

place. Critical path method (CPM), can be employed at this point such that activities scheduled are derived with their respective start and end dates.

Also at this point, one may generalize an activity chart, and hence work out a Gantt chart that is used for tracking project progress by constant update as the project develops. A general task list is shown in Table 2 with all the tasks listed along with their respective subtasks. Once their estimated duration is evaluated, the start and finish dates can be updated and incorporated into the chart. Tasks listed in the Gantt chart vary from web site to web sites and are often greatly affected by the site complexity. Table 2 captures the most commonly required tasks in this context. These fundamental tasks can be used as a template for e-business project planning.

Task	Duration (working) days	Start date	Finish date
Project Analysis			
Define user requirements			
Analyze web site requirements			
Cost and functionality analysis			
Acquisition of goods and services details			
Design			
Design web site structure			
Desktop/User interface			
Security features			
Prototyping			
System Development			
Web pages			
Graphics			
Database			
Style consistency inspection			

Unit/component test			
System Integration			
Link pages and images			
Link Database			
Overall System Test			
Page links			
User Interface			
Database access			
Exceptions handling			
Trial Trading			
Connection to the internet			
Transaction handling			
Linkage to financial institutions			

Table 2. Left columns of a generic e-business Gantt chart for progress tracking.

3.6.4 Network Modeling

Program Evaluation and Review Technique (PERT) is a commonly used method when evaluating risks to the schedule. It is a widely used tool in project management because it can be used for estimating the probability of meeting or missing scheduled dates. Using PERT as a network model, activities with their mutual dependencies can be realized graphically.

In CPM it is most appositely done by representing activities as links in the plan. All activities may commence as soon as resources are available and allocated with a node as illustrated in Figure 3. So, each of these nodes does not depend on other nodes to complete before commencement.

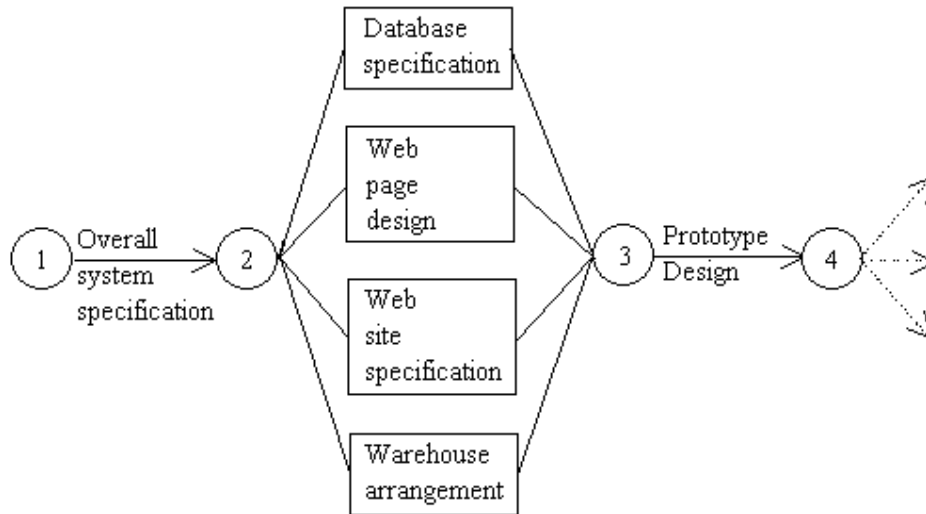


Figure 3 A simple e-business project activity in a CPM network.

When an explicit description of activity network is known, it is possible to predict the project duration. The activity network can be generalized. PERT is used to estimate progress of various tasks and it can generate the degree of certainty expected in the task performance by taking the difference between the most pessimistic and optimistic estimates. This approach can be adopted to track each task independently when planning an e-business project.

3.6.5 Human Factors

Various factors determine the punctual completion of a project and every single individual involved in different stages of the project is accountable for the project implementation. People hold the key to project success and are closely related to risks analysis. Project manager allocates tasks to individual project development team members. Some tasks may be interdependent with each other so that overall progress can be affected by an individual team member. Project progress requires a motivated team. The Project Manager needs to be trained for the e-business business structure. The chance of failing to estimate timing accurately can be eliminated this way. Managing conflicts and activities are major tasks performed by the project manager. Staff movement can be another critical factor in time management. Team members may leave the project and new members can join and take up various development tasks. The project advancement can be greatly affected by staff movement of an organization. The skills of team members can be an unknown factor in a new project.

The management of an e-business project needs to clearly define the role of each team member with reference to the tasks involved. Any disruption to the project due to staff movement can be reduced by clearly defining responsibility in activity units so that task re-allocation can be made relatively easily when necessary.

3.7 MARKET RESPONSE: IMPACT OF CHANGE IN ECONOMY

There is a huge difference in terms of spending power and buying sentiments in the macro economy. Production of some merchandise can be done by unskilled labor in a low-wage developing country yielding a huge reduction in cost. Nonetheless, goods are often shipped from the origin of manufacture to a centralized location before distribution to final destination markets. e-business provides a simple way of directly shipping goods from its origin to customers worldwide. It has an added advantage of addressing the quandaries in terms of scarcity and consumer demand in a wider choice of products and suppliers.

3.7.1 Economic Analysis

Uncertainties with other industries in the past may change the way e-business models are shaped. Many approaches can be used to analyze environmental impacts. Some of them can be labeled specification techniques, aiming at organizing information about environmental impacts in a consistent manner. Evaluation in economic terms can be done in many ways. An e-business establishment needs to constantly revise the cost-benefit analysis so that any change can be detected as soon as they take place. Cost benefit analysis is a coherent method to organize information about social benefits and costs. Benefits and costs are evaluated on the basis of an individual's willingness to pay for a particular type of product or service, as viewed through a social welfare ordering representing the performances of the relevant decision maker.

Application for Permits and Impacts due to Government Legislation

If the permits are issued once and for all the sources, but after that they are bought and sold on a market, the result will be similar to the result with an emission tax.

The permits will then have an economic value and by adopting a new and cleaner technology, the e-business establishment can sell some of its permits and make profit. If the price of the permits does not change because of the new technology, the result will be exactly as in the case of an emission tax. Nonetheless, if several companies adopt new technologies, the total demand for permits will fall and so will their price. The return from adopting new technologies will therefore drop and so will the incentives to develop new methods of project implementation. In general, permits that can be transferred from one company to another will give smaller incentives for technical development than a tax but larger than in a pure command and control policy.

These aspects on technical development are very important in relation to the long term environmental targets. For discussion, suppose that the authority wants to eliminate the conventional way of project implementation involving release of pollutant to the atmosphere and replace it with a more environmentally friendly way at some date in the

future. Then, the authority may impose new legislation stating that certain years from now, no projects involving discharge of such pollutant can be executed. In the event that no technical development has taken place and before the deadline comes, then offending projects will mostly be terminated. If the implementation of such project is not permitted, the consequences can impact a wide range of industries. Another possibility is to impose a tax on releasing such pollutant as a result of any project implementation.

Further, environmental regulation will reduce the return on the capital investment which in the long run may reduce the capital formation and thereby the economic growth.

Studies of the United State's environmental legislation with the assistance of dynamic computable general equilibrium model indicate that this effect can be substantial. It is clear that an emission tax will reduce the return more than a pure command and control system, including a system with transferable permits. Therefore, one would expect an emission tax to reduce the growth of the economy still further. However, emission taxes are perceived as part of the much wider portfolio of different taxes on labor, capital and value added. It is possible to design the total tax system in such a way that the negative effects on capital investments from an emission tax can be offset by changes in taxes on profits. In fact, a part of a much bigger tax package may include reduction in capital taxes, reduction in labor taxes and increase in value added taxes. In economic terminology, the package takes away the effect of income of the emission taxes but retains the substitution effect by taxed pollutant. For a start, its overall profitability decreases due to the cost increases. This decrease in profits may have as an effect on reduction in output and therefore also in emission. This is the income effect. However, even if there is no income effect, there is the much more important substitution effect. It is less costly for a company to use environmentally cleaner technologies, including increased abatement and increased use of cleaner inputs. Thus, one could design a tax package including emission taxes that would have no income effect but still could give rise to substantial substitution effects. By this, one could increase the chances of sustained growth.

3.7.2 Continual Change

The growth in incomes of consumers over time has been sustained together with improvement in technology. Innovations ameliorate quality of life. As such, ways of product designs have changed and consumers' demand on products increase proportionally. These technological advancements boost productivity and improve ways of how products function.

E-business establishments have to adapt to economical changes so that every change is dealt with right from the initial planning stage in order to minimize the impact of changes to project development.

3.7.3 Globalization

Market economy has been shaped by globalization that has gained momentum since the late 1980s with the fall of the iron curtains and opening of market in some developing countries leading to a vast expansion of cross-regional trading. One of the major driving forces of globalization is the steep reduction in transportation and telecommunication costs in a large part due to technological advancement in internet access that directly benefits e-business trading. The cost of delivering goods around the world has dropped significantly while the amount of data transferred across the global information superhighway has increased extensively at the same time.

4.0 CONCLUSION

This unit has illustrated some common steps necessary for managing e-business web site development projects. Certain risks are communal amongst all web site development projects. Progress tracking by means of a Gantt chart in conjunction with a network analysis model has been generalized for common e-business web site development projects. Project delay can be caused by many uncontrollable factors such as people movement and technology advancement as well as non-standard platforms and otherwise means of access. Human factors and uncertainties of the initial web site system can increase the project risk that may require extra effort in hazard identification during the early stage.

5.0 Summary

Project development can be generalized and determination of control distribution in the design phase can be done to find out any subsequent changes to the project plan during development. Significant changes can be expected at any stage of project development due to changes in demand and market circumstances. These changes very often take place much more rapidly and suddenly than for most other software engineering development projects.

6.0 Teacher Marked Assignment (TMA)

1. What are the fundamental features of e-Business project?
2. List and discuss the main ingredients of e-business project planning.

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UNIT 3: The Application Service Providers

Table of Content

1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1 ASP 3.1.1 Victoria’s Secret

3.1.2 Ford

3.1.3 Microsoft

3.2 Obstacles to the success of

Established Enterprises

3.2.1 Fear

3.2.2 Ignorance

3.2.3 Denial

□□□□□ Culture

□□□□□ Bureaucracy

□□□□□ Cannibalization

- Channel Conflict
- Brand Identity
- 3.3 Carve Outs

3. 4 Enterprise Resource Planning

3.4.1 What is ERP?

3.4.2 What Resources?

3.4.3 The Hope?

3.4.4 The Hype?

3.4.5 The Pain?

3.4.6 Why does it fail so often?

3.4.7 What leads to success?

3.4.8 What are some of the parts?

4.0 Summary

5.0 Conclusion

6.0 Tutor-Marked Assignments

7.0 References/Further Reading

1.0 Introduction

Toward the end of the millennium, large companies became increasingly restive with the existing computing model in the enterprise. With millions of PCs running various kinds of productivity applications and special applications, companies faced the problem of keeping all of the software up to date, fully licensed, and operating with full efficiency. It was a gargantuan and decentralized task. Application Service Providers (ASPs) offered a different model.

3.0 Objectives

At the end of the unit you will be able to:

Identify the type of application service provider your company is using or likely to use.

Understand the obstacles to success of established enterprises

Discuss 'carve outs'

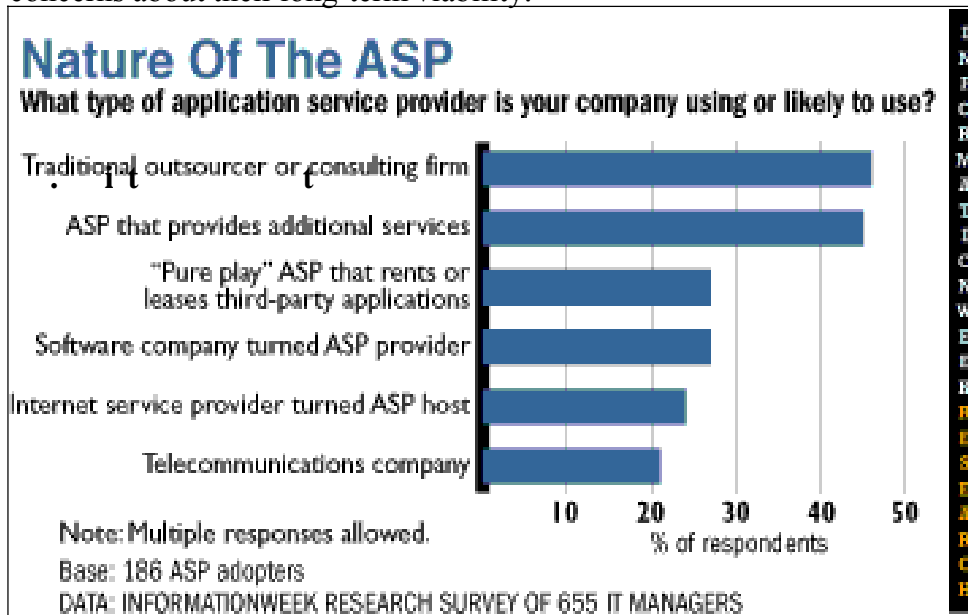
Discuss Enterprise Resource Planning(ERP)

3.0 Main Content

Outsourced productivity applications on the Internet are edging somewhat closer to reality,. Large companies in particular want to own their applications and have them interface with other systems. They cite:

- Security and lack of control figure highly.

□ Some companies aren't working with ASPs because of concerns about their long-term viability.



When Victoria's Secret decided in 1997 to go on-line, they faced a fairly typical situation for old-line retailers. First, they were comparatively late to decide to play in this arena. They had a huge brand name that could be leveraged, but also must be protected. They had established relationships with customers and there were expectations that went with those relationships.

The advantage of the brand was highlighted by the first deployment of the Victoria's Secret site.

As an established enterprise, Victoria's Secret wanted to be sure that its Internet customers had much the same experience as its catalog customers. That experience begins with very high quality photographs of some of the worlds top models wearing the Victoria's Secret product line. There were some technical challenges to delivering content at a high enough quality over low bandwidth connections. Servers also had to be scaled to maintain the quality and availability of service even when heavily loaded during peak periods or promotional events. A catalog sale is initiated when a customer calls one of three call centers strategically located around the country. The sales representative is able to use a private network to check an IBM dB2 database and tell the customer if the item is in stock and when it might ship. The Internet customer needed to have the same experience. This required tight integration of the Web site with the established database.

Lastly, Victoria's Secret wanted to be able to use the web to build the brand further. Toward that end, they planned an early deployment of the web site that would broadcast the companies spring lingerie fashion show from Cannes. This last ambition was to be by far the most

difficult to implement. Server and bandwidth requirements for streaming video are the largest of all of the web experiences. In order to size the servers, they had to make an estimate of the peak loading and then design around that. In the February 1999, they did their first fashion show. From a marketing perspective it was an enormous success. Far more people visited that anyone had planned for. From a technical perspective and a consumer experience perspective, the broadcast was a complete fiasco. The web site simply could not handle the anticipated demand.

The resulting bad publicity may have once again confirmed the adage that there “is no such thing as bad publicity!” Victoria’s Secret could never have afforded the advertising that came to them for free as the result of the show. If building brand awareness was the goal, there were few who were not aware that Victoria’s Secret had just conducted an ambitious web broadcast that failed because so many people were interested. In the following years, they got better and better at meeting customer expectations and customer awareness has continued to grow.

3.1.2 Ford

What would Ford Motor company look like if it operated like Dell Computer in offering mass customization of its products for buyers or Wal-Mart if it gave it’s suppliers the responsibility for “stocking the shelves,” or making sure that they controlled inventories for Ford. Apparently, the vision was so compelling that Nasser committed the company into a massive makeover into what he hoped would be the first automotive Internet e-Business. The strategy was multifold. The objective was to increase revenues through “build to order” sales and through the creation of a services strategy in which packages of services would be delivered to consumers in their cars. "It could give us a bird's-eye view of what consumers want out of a car before we build it," J Mays, Ford design chief. This was the B2C portion of the vision.

Ford also anticipated stream lining internal business operations. They planned to jump start this by offering each employee a home computer, a printer, and Internet access for \$5 per month.

Planned components of this strategy included:

- Using Microsoft’s CarPoint for sales and information,
- Yahoo for direct customer contact,
- Price-line.com for on-line auctions
- TeleTech to help provide a call center system for customer

support.

Ford also anticipated a host of new services: With Visteon, Customer Connect plans to wire every Ford for wireless access to the net, and then provide email, navigation, news, voice recognition, and communication services –all at a profit for Ford. Services, sold on a subscription basis, would provide a continuous revenue stream from every buyer.

The objective is to change the business model from one which produces cars at a steady rate, inventories them for an average of 64 days, and then sells what it builds through rebates and marketing into one in which it sells cars, builds to order, and delivers promptly to customers.

Not surprisingly, this has many of the established dealers and suppliers in a nervous state of watchful waiting. It has also led some dealers to take pre-emptive political and legal actions to make it more difficult for auto companies to connect directly to the consumers, potentially bypassing the dealers. In Texas, the auto dealer associations pushed for and got protective laws in that regard.

3.1.3 Microsoft

It may seem audacious to lump Microsoft with the Dinosaurs, but with businesses changing at rate consistent with “Internet time,” Microsoft has been through two major eras of its existence and embarked on a third era on June 22, 2000. Bill Gates and Paul Allen founded Microsoft in 1975 based upon a vision of how the microprocessor chip (invented by Ted Hoff, RPI engineer, at Intel) would create of world of “personal computing” and bring computing to individuals, homes, and offices in an unprecedented way. By the middle of the 1990’s there was a new vision of computing developing. It would not be enough to have the latest and most powerful individual computer running the latest and most powerful applications. Instead, computing was about being connected. Those technologies that had been created by scientists for sharing of technical information suddenly became necessary for every personal and business reason imaginable.

Microsoft had built its business by created what had become the DNA of personal computing. It began with DOS and then continued with Windows.

A key element of the Microsoft strategy was to adopt (some would say co-opt) the emerging Internet standards and to do them better and cheaper than the competitors. The core of that strategy was the creation of the Internet Explorer browser beginning from code licensed from the Mosaic spin off of the NCSA. The Internet Explorer code would then be intertwined with the Windows code and embedded in all of the popular Office applications such as Excel, PowerPoint, and Word. The goal was to create a seamless experience for users with Microsoft Windows at the core. The business goal was to create the DNA of networked computing, just as they had created the DNA of personal computing. Once again, Microsoft would be indispensable.

Only the most ardent of Microsoft opponents could deny that they were successful in doing exactly that. In fact, it was just that success that became the core of the anti-trust case. The real question here was whether Microsoft illegally “tied” its browser to Windows and other products in a way that used their monopoly on the desktop to crush Netscape and dominate the network-computing world.

Microsoft did not have first mover advantage. That advantage went to Netscape for the browser and to Sun for the networked computer. Still, Microsoft had overcome Apple's first mover advantage in graphical user interfaces quite handily. A first mover advantage is only a competitive advantage if it can be defended. Unless patents protect the advantage, defending first mover advantage usually entails creating high switching costs for users or continuously innovating to make it impossible for the competitors to catch up.

Microsoft helped to lower the switching costs by making the Internet Explorer (IE) browser free to users. Anyone with a Microsoft operating system could download the browser anytime they were connected to the net. Microsoft used its dominance (legally or illegally –that is the question) to distribute IE with every new operating system, and since most new computers were delivered with Microsoft operating systems, this meant that most new computers were delivered with Internet Explorer. In a turn-about on first mover advantage, Microsoft even raised the costs of switching to Netscape by requiring manufacturers to preload IE with every computer they delivered with Windows on it. In order to switch to Netscape, users had to either remove or ignore IE and install Netscape. This clearly (legally or illegally –that is the question) raised the switching costs and encouraged use of IE.

Another way to lower switching costs from Netscape was to make IE a high quality browser that could do everything that Netscape could do. Unbiased observers generally feel that Microsoft did an excellent job at that. IE usually released support for standards that came sooner and performed better. As Java emerged as a potential standard, Microsoft both licensed Java from Sun and released a Java Virtual Machine that was at least as powerful as the competitors.

Where Microsoft ran afoul of competitors was in its propensity for “extending” standards with proprietary extensions that often took advantage of Windows specific functionality. This infuriated Sun, Netscape and other competitors since it often meant that developers would take advantage of these goodies and then tie their applications to Windows only environment in direct contradiction to the cross platform intent of the originators of the technologies.

3.2 Obstacles to the success of Established Enterprises

What are the obstacles to the success of established enterprises? The following list enumerates many of these.

- Fear
- Ignorance
- Denial
- Culture
- Bureaucracy
- Cannibalization
- Channel Conflict
- Brand Identity

3.2.1 Fear:

Businesses can feel fear for many reasons, including of all of the other items on this list, especially including:

ignorance,
brand identity,
cannibalization,
channel conflict, and so on.

Fear can be both rational and irrational. There are lots of things to fear when a company is about to change its business model and this is even worse when the outcome is far from certain. But, there is also something about the Internet, that generates fears, particularly in those who matured before it existed.

Many executives have seen their colleagues careers ended and/or shortened by either denial or missteps in their Internet strategy. They are caught between the frying pan and the fire. If they try to sit it out, they risk being labeled “old guard.” If they jump in with both feet, they risk making a horrible mistake. It should be no surprise that some executives chose retirement over these alternatives.

For those executives that have worked in a hierarchical institution for most of their careers, the rise of the internet has broken down the perquisites of rank. Rank means nothing when technology discussions start! Technology is the great leveler that can favor the entry level employee over the long experienced executive.

3.2.2 Ignorance:

Ignorance is often the other face of fear. The generation of business leaders now in power did not come of age in the Internet generation. They had to learn! And they often learned from their juniors and their children. Ignorance combined with fear often leads to bizarre and misguided efforts.

3.2.3 Denial:

Where ignorance and fear are found, denial cannot be far behind. Denial is a timeless human strategy, and is often a successful defense mechanism against faddishness. A healthy dose of skepticism is a good thing for most executives. The hard part is knowing when skepticism ends and denial sets in. Skepticism mandates that the skeptic pay attention to the phenomenon but continue to test it in every way possible. Denial prefers to “avert one’s eyes” from the phenomenon rather than to have to deal with it. The skeptic is anxious to challenge the assertions of the “true believers.” Those in denial really don’t want to engage at that level.

Denial usually leads to delay and that often leads to managing from behind. As we have seen there are special challenges for those who are slow to “get it.” It is not impossible to be a fast follower, but you had better be pretty fast and a pretty good follower. Fall too far behind or let too many organizations get in front of you and recovery may not be possible.

3.2.4 Culture:

Culture can be either an obstacle to change or an enabler of change. It depends upon the particular culture of the organization. In the transportation industry change is a slower event.

Computing has also established itself as an element of culture in corporations and indifferent geographic regions. It was used by secretaries for Word Processing, and by junior accountants and bookkeepers for Accounting. Armies of semi skilled and often lowly paid workers were classified as data entry workers. In fact, a computer on your desk was often a sign of LOWER status. This has changed rapidly and severely in Nigeria. What self-respecting young executive would want to be without her Palm Pilot, cell phone, or laptop? In many circles, technology has become a badge of honor, but that is not true everywhere.

3.2.5 Bureaucracy:

Sometimes it is just the usual corporate inertia, characteristic of large bureaucracies, that is an obstacle to change. If you wanted to do something innovative, it would have taken far more bureaucratic wrangling than most executives would be willing to undertake. This often meant that innovation could only be done by those who were given the official job to innovate. History has shown that large bureaucracies are very bad at setting directions for innovation. Bureaucracy is the enemy of innovation.

3.2.6 Cannibalization:

One of the very toughest management decisions is the decision to do something that might take away sales and market from a successful product or service. Companies are loath to compete with themselves, and text books are full of stories about companies that would rather not, and then lived to regret that decision. As we saw in the section on “Strategy,” many companies are vulnerable to “disruptive technologies” that may be cheaper, simpler, and even less functional, but that can do the job for the customer.

One of the most important cases came when AMD and Cyrix introduced less costly chips for consumer and low cost business computers. They could not rival the power of the Pentium –at first. But they quickly moved into the low cost market and then began to drive improved performance into the more profitable sectors of computing. Ever the

paranoid, Intel countered with the Intel Celeron and used their awesome power to produce at scale and low cost to drive the prices down and make things uncomfortable for the competitors.

3.2.7 Channel conflict: If your business depends upon a channel for getting product to the customer, then any change to the business models means that you must consider the effect on the channel. If you won the channel, this is an easier thing to accomplish. If not, you have to be careful.

Examples of channel conflict abound. Dell Pioneered a direct aisles model that was far less expensive and far more responsive to customers. When competitors such as Compaq tried to respond, they ran head on into their channel. Their dilemma was that if they competed directly with the channel, the channel would boycott Compaq and damage their revenue stream. If they did not compete with the channel, Dell would eat their lunch. Dell ate their lunch.

Automobile sales are a very special case. Independent automobile dealers have a long history as the channel, and possess great political and legal clout.

3.2.8 Brand Protection:

Brand identity can be a powerful asset for the established enterprise, but it can also be an obstacle to success in e-Business. Brand identity must be protected. As we saw with Victoria's Secret, they had a reputation for a high quality visual experience for the purchasers. They could not afford to irritate the customer by providing less on the web. It was quite a challenge! In fact it was a challenge that they first failed, but eventually overcame.

3.3 Carve Outs

The "Carve-out" is one strategy often used by established enterprises to obtain value from an internet portion of their business and to give the business some insulation from the bureaucracy of the parent.

The Business to Business (B2B) Surge

Established enterprises have led the way on the deployment of e-Business applications in the business to business (B2B) arena. While most of the new e-Businesses were targeting the e-Commerce market, established enterprises had sound business reasons to focus on the Business-to-Business market.

There are technology issues with B2B portals as well. Frictionless B2B transactions depend upon seamless interchange of information and that has never been easy to do when each corporation has their own formats for databases and applications. Electronic Data Interchange (EDI) has

been facilitated by a set of complex standards and processes for exchanging information. Each interface is difficult to implement and usually must be done on a case-by-case basis.

XML is widely viewed as the technology that will make EDI easy, or alternately the technology that will make EDI obsolete! By tagging documents with XML tags that are agreed upon by industry standards groups or made a defacto standard by a powerful player, organizations will be able to exchange data far more easily.

B2B portals raise many concerns about industry collusions. If industry groups gather together to form industry wide portals, will those be used to fix prices; extract price concessions from suppliers, or raise barriers to entry? This is an area closely watched by government and this scrutiny will surely be applied to business-to-business portals.

Enron

Enron was a large established player in the energy market, and, like many established enterprises, they were slow to get on-line.

This audacious move into a new area is unusual for most companies, but Enron had done it once before, when they decided that they could trade electricity in much the same way that they traded gas up until that time. Many in the electrical utility industry were dismissive of Enron's efforts in that regard. They no longer are. Many in the networking business are dismissive of their efforts to enter bandwidth trading. . The story of Enron's rise and fall will become a must read study for all corporate strategists.

Covisint

Ford, like GM before it, also expected to see huge cost savings based upon control of inventories, automating the supply chain, and providing a market for suppliers and consumers of automotive parts.

Consolidation and Shakeout in B2B

Whether the new technology is railroads, cars, radios, television, or B2B business models, the pattern of growth seems to exhibit similarities. In the early stages the barriers to entry are low, the availability of capital is good, "branding" is less important, and the number of entrants is large. As the new model develops a brutal consolidation period leads to a shakeout of the industry leaving only the strongest, best financed competitors who grow by acquiring the less successful or at least picking through the rubble of the failed competitors.

3. 4 Enterprise Resource Planning

3.4.1 What is ERP?

Enterprise Resource Planning programs

- Have roots in Materials Resource Planning

- Enabled by Data Base Management systems
- IDMS or IMS (IBM) or DBMS (DEC –Cullinet)
- Planning and Scheduling of Resources

3.4.2 What Resources?

- Financial
- Human – employee
- Customers
- Materials
- Property, Plant, and Equipment
- Distribution Systems
- Corporate Strategy

3.4.3 The Hope?

- What Problem does it solve?
 - o The “interface” problem
 - o Lack of integration of disparate systems
 - o Difficulty of reconciling data from disparate systems
 - o Delay in processing transactions
 - o Reduce cost of interfaces

3.4.4 The Hype?

- One system: integrates all data from all sources
- Seamless interfaces
- Frictionless transactions
- Instantaneous data

3.4.5 The Pain?

- Very high cost of implementation
- Dollars
- Person Power
 - Often forces a change in process
 - Requires extensive training of employees
 - Takes a long time to implement

3.4.6 Why does it fail so often?

- Failure to define requirements going in.
- Poor selection of package and platform
- Software, hardware, DB
 - Inadequate resources budgeted for the transition
- Money and People
 - Resistance to Change
- Easier for you to adapt to it, than it to you.
- Some processes will need to change
- Lack of end user “buy-in.” Stake holders.

3.4.7 What leads to success?

- The RFP: A company that understands and carefully documents its needs.
- Adequate resourcing of the project
- Flexibility- adapt processes

- Change management
- Enlist, empower, communicate, lead, listen, train
 - Train and train some more.

3.4.8 What are some of the parts?

- General ledger
- Budgeting
- Human resource, benefits, and payroll
- Customer Relationship Management. (CRM)
- Manufacturing
- Forecasting, materials requirements, planning and purchasing
 - Supply Chain Management
 - Order Processing, inventory management
 - Logistics, distribution, fulfillment
 - Training

The ERP Players

- Oracle
- SAP
- J. D. Edwards
- I2 and IBM
- PeopleSoft
- Baan
- Siebel

4.0 Summary

Outsourced productivity applications on the internet are edging somewhat closer to reality. Large companies in particular want to own their applications and have them interface with other systems.

5.0 Conclusion

You have understood the nature of application providers, the obstacles to success in established enterprises and enterprise resource planning(ERP). The resources, the hope, the hype, the pains, why it fails often. You can now move on to the next unit on developing and enhancing a product catalogue.

6.0 Tutor-Marked Assignments

1. What are the obstacles to the success of established enterprises?
 - 2a. What is ERP?
 - 2b. Mention the ERP players.

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MODULE 4: DEVELOPING AND ENHANCING A PRODUCT CATALOGUE

UNIT 1: Developing a product catalogue and order Processing

UNIT 2: Transforming Businesses

UNIT 3: Building a web presence site

UNIT 4: Application Development Process:

UNIT 5: Electronic Infrastructure and EDI

UNIT 6: Marketing Strategies for e-Business

UNIT 7: Legal, Ethical and other Public Policy Issues

UNIT 1: Developing a product catalogue and Order Processing

Table of Content

1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1 Product catalog development and enhancement

3.1.1 Categorization and classification

- 3.1.2 Taxonomy development
- 3.1.3 image processing
- 3.1.4 large volume content/data aggregation
- 3.1.5 Content moderation
- 3.1.6 Intelligent moderation
- 3.2 Processing Orders
- 3.3 Electronic Services for Businesses
- 4.0 Summary
- 5.0 Conclusion
- 6.0 Tutor-Marked Assignments
- 7.0 References/Further Reading

1.0 Introduction

Online retailers and Comparison Shopping Engines need to have updated and enriched product catalog. Customers need to make informed choices on product/service purchase, an un-enriched product catalog would leave them dismayed. Unstructured, un-enriched, inadequate content profile inhibits decision making for the customers. Insufficient information raises concerns in the mind space of the customer and enriched information expedites the decision making process. Product catalog development and enhancement solutions cater to this need.

2.0 Objectives

At the end of this unit you will be able to:

Understand Product catalog development and enhancement.

Identify the steps in order processing

3.0 Main Content

3.1 Product catalog development and enhancement

Across a range of categories for both technology products and soft goods, comprehensive coverage on product attributes would enrich the catalog. Imagine your customer surfing through the catalog and not finding the key attribute that would make him click on “Add to cart”? The impact on conversions and effect on bounce rate is evident.

3.1.1 Categorization and classification

Categorization of product catalog content is essential so that your customers are able to easily locate what they attempt to seek. Correct categorization of product catalog is essential so that your products get maximum visibility on your website so that they can be accessed and transacted by customers. You may build a great website and have a good taxonomy, however if your products are not associated with the right category and is miscategorised – that’s a huge loss!

3.1.2 Taxonomy development

The rate at which online catalog inventory has exploded has increased attention from customers as well as trading partners. If catalog information has to be shared among these entities and result in trade it needs to be aligned to a specific, logical architecture of information organization. This architecture needs to appeal to the sensibilities of the end user. You need to deploy the right Taxonomy or an information organization structure which serves the needs of your clients.

3.1.3 image processing

A good product catalog is not just about product specifications, but also of the right kind of images. Images complement product catalog information, providing customers a holistic and engaging customer experience.

Online retailers, Comparison Shopping Engines and image search engines – all need image categorization, image resizing, and other processing services. Manage, enhance and optimize your product catalog images for a complete online catalog.

3.1.4 large volume content/data aggregation

Content aggregation, the first milestone in the content supply chain – the precursor to any decision making process. Aggregation of the most recent or updated information is the key to ensure that your customers feel comfortable in the knowledge that they have the latest, complete information required to make decisions. Acquiring and disseminating information on time however is the key to retain customer loyalty. Acquisition or aggregation of information from the web is done using customized scripts or from product manuals, and marketing literature, etc.

3.1.5 Content moderation

The influx of information on the web today has exposed us to various consumer generated content sites such as social networking sites. Although anybody can merely create a profile and comment, there are times when a disgruntled customer or the competition may feed or give vent to rumors that could potentially rip off your brand image.

Content Moderation services are designed to serve this need for online community websites and key vertical search engines and directories. Qualified content moderators sift through various images and text expressions and impressions to effectively build a gauge on brand image and perception. This service also enables you to comply to and local governance protocols as well, so that the right kind of environment prevails and good content and know-how prevails.

3.1.6 Intelligent moderation

Moderation services are based on human intervention and intelligence, which help moderate and eliminate malicious content exposed through

unwanted submissions, thereby eliminating the risk of offensive content for site and brand.

3.2 Processing Orders

Processing orders should look something like this:

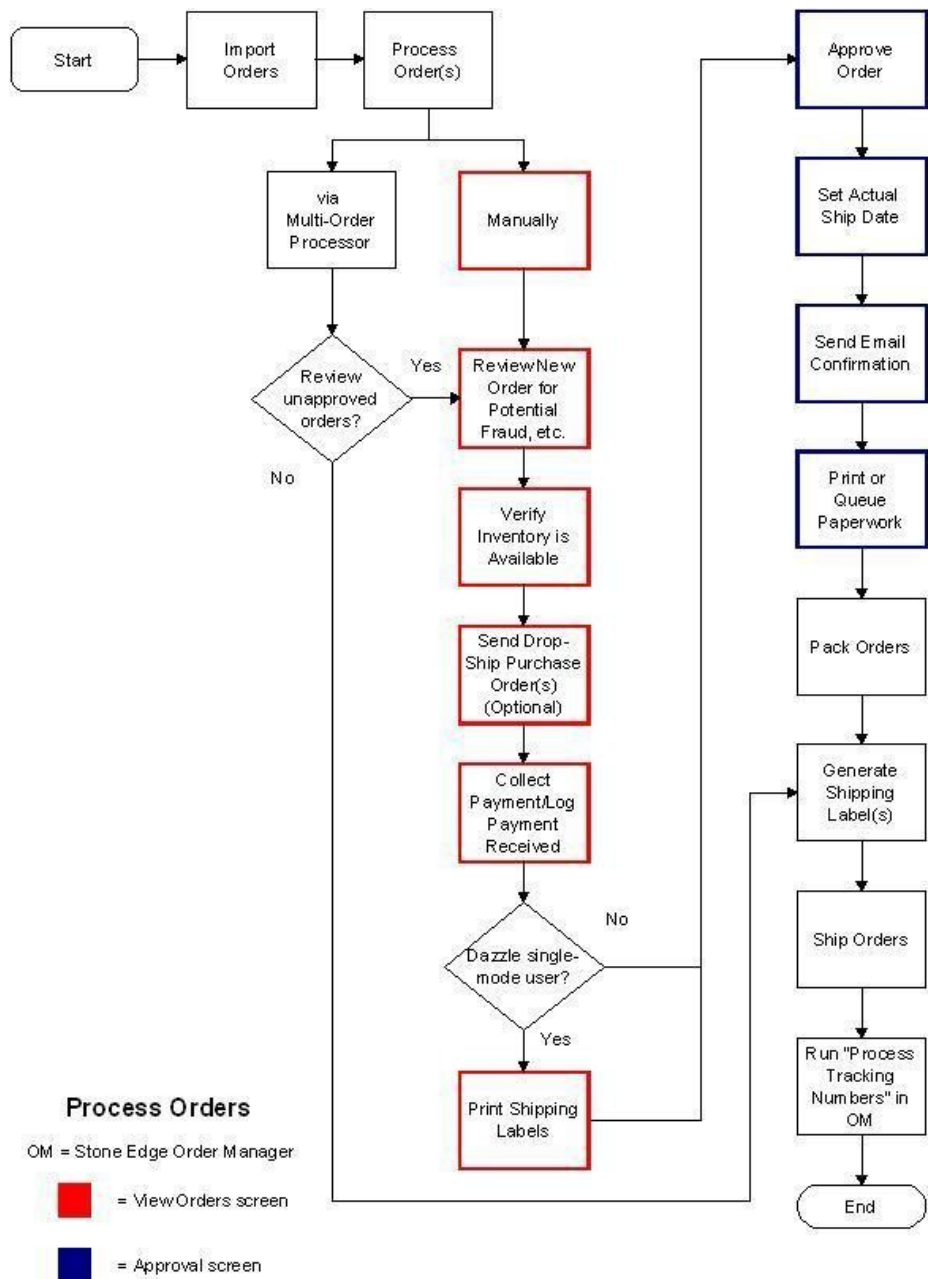
1. **Import orders.** This varies depending on your shopping cart, but generally: on the Main Menu, click Import Orders, select the cart you wish to import from, and click Import via Internet. The Order Manager contacts your shopping cart and downloads any new orders.
2. **Process orders.** When you are first becoming familiar with the program, review your orders one at a time on the View Orders screen. Later, you can try out the Multi-Order Processor and Approval Rules to get you processing orders with fewer steps. The various stages of filling an order can be straightforward or more involved, depending on your business needs and the level of control you want over the process. In time you'll learn what you typically do repeatedly (and can therefore automate).
 - a. **Spot-check for fraud, accidental or bogus orders.** Depending on the version of the Order Manager that you use, you can do this several ways: by clicking Validate next to the Sold To and Ship To addresses on the Addresses tab, by reading your credit card gateway's Address Verification System response and Card Verification.
 - b. **Check inventory status.** A customer wants two widgets and the Order Manager shows 1 Shipped, 1 Needed, 0 On Hand. Why? You're out of widgets. You need to decide if you want to ship the customer just 1 widget (i.e. partially ship the order), or wait until more come in and ship both of them at the same time (i.e. wait until the order is complete). If you don't want to ship part of an order for whatever reason, you can forcibly backorder an item or return it to inventory by clicking Force. If you are reviewing a previously unapproved order, and you now have enough widgets to fill a backorder, click Fill.
 - c. **Send drop ship purchase orders.** You can skip this step entirely if you don't drop ship from any of your vendors. If you do, create a drop ship purchase order (e-mail it, fax it, etc.) from the Drop-Ships tab, and then confirm the actual ship date of the products on the Ship Dates & Status tab.
 - d. **Collect payment.** If you do not collect payment from your customers in your shopping cart, you may have to charge a credit card, capture an existing pre-authorization, verify a PayPal payment, or wait for a check to arrive depending on the order
 - e. **Print shipping label** (optional). If you use DAZzle or the Order Manager's integrated USPS shipping labels, you can print them on the Shipping & Tracking tab.
3. **Approve the order.** To approve an order essentially means that you are going to ship something on the order to the customer. How do we determine what is shipped? On the View Orders screen, there are several

columns for each line item, including Ordered, Shipped, Needed, and On Hand. When an order is imported or an item is added to an order, the program attempts to remove the quantity ordered from the On Hand column and place it in the Shipped column. If there are not enough items in your inventory to completely fill the order, the program lists as many as possible in the Shipped column and the remainder are listed in the Needed column (these are your backorders). It helps considerably if you think of items in the Shipped column as "Shippable" since the items have been allocated to the order but not necessarily sent to the customer yet - and if the order is unapproved, you can assume that in fact the items have not been sent. Now that we know what you're capable of shipping, if you intend to ship it, approve the order. If you need to put an order on hold for further review (due to potential fraud, invalid credit card number, etc), you can always skip the order and approve it later. If you do not intend to ship anything (for any reason), cancel the order. To approve the order, click on the Approve button in the upper right hand corner of the View Orders screen.

4. **Set the actual ship date.** Use the calendar on the Approval Options dialog box to indicate when the order will ship and click in the Store Date Shipped checkbox. Storing this information allows you to search for orders shipped on a given date at a later time if necessary.
5. **Send email confirmation.** Click in the Email Confirmation checkbox and select a template on the right if you wish to email the customer at this point. Generally, you are just notifying them that you received their order and indicating when it will ship. If you'd rather wait until you have a tracking number to give them you can skip this step.
6. **Print unit work.** If you wish to print a sales receipt or a packing slip, enter the quantity you wish to print (the default is one). If you wish to print the unit work immediately, click Approve & Print Now. Approve & Print Later queues the unit work in the Batch Printing queue and Approve Without Printing skips the unit work portion altogether.
7. **Repeat steps 2-6 as necessary.** Clicking one of the "Approve" buttons in step 6 causes the program to display your next unapproved order. When you reach the last unapproved order, the program lets you know.
8. **Pack the orders.** You can use the Pack and Ship system to prevent packing errors.
9. **Generate shipping labels.** You can do this using external software such as UPS WorldShip or FedEx Ship Manager, or from within the Order Manager using DAZzle for USPS. Typically, the process goes like this:
 - a. Enter the Order Manager Order Number as the "Package Reference".
 - b. Select the address, weight, and service desired.
 - c. Print the shipping label.
10. **Ship the orders.** When you are ready for a pick-up, run the "End of Day" process in your shipping software. A shipping manifest prints and UPS / FedEx writes the tracking numbers directly into your data file. The tracking numbers are associated with your orders immediately.

11. **Run "Process Tracking Numbers" in the Order Manager.** Click on the Process Tracking Numbers button on the Maintenance Menu under Shipping & Fulfillment. Any new tracking numbers are emailed to your customers. As part of this process, tracking information and status updates are also sent to certain shopping carts and the Order Status System.

This flow chart is for users to get an idea of one possible way to process orders in the Order Manager. Depending on your company's business process, you may find it necessary to add or skip steps.



The system



parameter

ReviewAllOrders is set to True by default. This means that you are required to manually approve every order: Web orders, Manual Orders and POS orders.

TVB believes that electronic business processes (eBiz) will enable buyers and sellers to transact business faster, easier and more accurately, resulting in more time for professional buying and selling. eBiz is much more than Electronic Invoicing. All Local Broadcast Television trading partners (stations, reps, agencies) should use an electronic process to place orders, handle makegoods and make revisions in addition to processing invoices. Under TVB's leadership, the local broadcast television trading partners (agencies, reps and stations) have come together to make eBiz a reality.

Recall that e-Business is the transfer of data from one computer to another. When computers connect, trading partners can conduct business transactions electronically. e-Business, particularly over the Internet, is becoming steadily more popular and secure.

Negotiating and buying television time is a detailed and complex process. In its simplest form, a typical broadcast purchase is conducted among three trading partners: agency buyer, sales rep, and station. Once the process has moved from the dynamic negotiation stage to the order and stewardship stage, the trading partners can be burdened with painstaking, repetitive actions.

The traditional spot television transaction goes like this:

1. When the buyer places an order with a sales representative, the order is typed.
2. The representative sends the order to the station; the order is re-keyed and faxed.
3. The station receives, reviews, and enters the order into its traffic system; the order is re-keyed.
4. The representative sends a confirming contract to the agency; the order is re-keyed.
5. The schedule airs and the station invoices the agency. A separate invoice is generated for each month of the broadcast schedule. The invoice is printed and mailed to the agency.

6. The agency receives the invoice and prepares for payment by sorting, coding, and inputting affidavits. A record of each spot aired (day, date, time, and commercial code) is re-keyed from the invoice into a matching system.
7. The buyer reviews the aired schedule and approves the invoice for payment.

In this basic life cycle of a spot TV buy, a single order (not including revisions and missed spots) is keyed five times. It is hardly a surprise that most agencies find 70 to 80 percent of all spot TV invoices discrepant. The inevitable result of the industry's manual way of doing business – besides the high error rate – is inefficiency for all trading partners.

Consider this e-Business scenario:

1. The buyer creates an order, which is transferred instantly into the representative's system
2. The representative sends the order instantly to the station.
3. The station accepts the order into the traffic system.
4. The representative confirms the order electronically, eliminating the need for a contract.
5. The station invoices the agency in an electronic interchange.
6. The agency reconciles the invoice and transfers it into the payment system.

Processing spot TV buys electronically, rather than manually, promises a more efficient procedure for all trading partners. TVB has created Open Standards for each of the core local broadcast transactions (e.g. Order, Revision, Make good, Invoice) so that all buy and sell systems will be able to send/receive data in the same way. In addition to airtime, the Open Standard transactions provides for non-airtime, websites, digital sub-channels and multiplatform buying.

3.3 Electronic Services for Businesses

Electronic Payment Methods

The e-Business Center offers bank draft and credit/debit card payment options. The third payment option is ACH Credit.

This Electronic Payment Method Chart shows differences to help you decide which method is best for your business.

Links to more...	BankDraft	Credit/Debit Card	ACHCredit
How to Initiate	e-Business Center- Taxpayer initiates through the e-Business Center.	e-Business Center- Taxpayer initiates through the e-Business Center.	Financial Institution- Taxpayer initiates with your financial institution.
Cost to Taxpayer	No additional processing fees	\$2.00 for every \$100.00	Taxpayer pays any processing

	apply.	increment of your tax payment.	fees charged by your financial institution.
Features Offered	Secure login Ability to store information in e-Business Center. View returns and payments filed through the e-Business Center. Share access to employees and professionals such as attorneys or accountants. Ability to cancel payment. Ability to warehouse payment.	Secure login Ability to store information in e-Business Center. View returns and payments filed through the e-Business Center. Share access to employees and professionals such as attorneys or accountants.	Contact your financial institution to determine if the ACH Credit payment method is available.
Payment Transfer Request Deadlines	5:30 p.m., ET, on the business day before the payment is due. Warehousing up to 60 days also available.	5:30 p.m., ET, on the business day before the payment is due.	Varies, check with your financial institution. At the latest we suggest submission one business day before the payment is due.
Additional Requirements	Register to use e-Business Center .	Register to use e-Business Center .	Register by submitting EFT-100 , allow time for NCDOR to approve.

4.0 Summary

Unstructured, un-enriched, inadequate content profile inhibits decision making for the customers. The panacea is to develop product catalog and order processing enhancement solutions to cater for this need.

Just Imagine...

No orders to print and fax.

No contracts to check and file.
 Instant, accurate make good input.
 No invoices to print, mail and input.
 Virtually no discrepancies.
 Historical buys at your fingertips.
 More time for negotiation.
 A process for multiplatform buying/selling.

5.0 Conclusion

The unit dwelt on ways to developing and enhancing a product catalogue and order processing to avoid loss.

6.0 Tutor-Marked Assignments

1. What are the product attributes that will enrich the product catalogue.
2. List the steps in order processing
3. Using a flowchart to show a possible order flow.

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UNIT 2 : TRANSFORMING BUSINESSES

Table of Content

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Why should we care?
 - 3.2 What is B2B?
 - 3.3 Business Intelligence
 - 3.4 Comparing B2B with B2C
 - 3.5 B2B differences from B2C
 - 3.6 What's driving the adoption of B2B
 - 3.6.1 Business exerting their buying power
 - 3.6.2 Businesses expanding their market reach
 - 3.6.3 Businesses reducing the cost of transacting business
 - 3.7 B2B business models
 - 3.7.1 Buy-side model
 - 3.7.2 Sell-side model
 - 3.7.3 e-marketplace model
 - 3.7.4 Trading Partner Agreement (TPA)
 - 3.7.5 Why is it important to understand these B2B models?
 - 3.8 B2B: Not writing new applications but transforming existing ones
 - 3.9 B2B: Connectors
 - 3.10 Enabling new business processes
 - 3.11 Connector technologies and products
 - 3.11.1 WebSphere Application Server
 - 3.12 Browser (client) considerations
- 4.0 Summary
- 5.0 Conclusion
- 6.0 Tutor-Marked Assignments
- 7.0 References/Further Reading

1.0 Introduction

The theme of this unit is “transform business”, that is, transforming the way you do business and the flow in which the processes interact with each other. This is not something you do alone. You need to transform business processes and workflow of your business partners, your suppliers and customers alike, along with you. You want and need this transformation to take place together and toward the same direction. The changes have to be almost revolutionary rather than evolutionary.

2.0 Objectives

At the ends of this unit you will be able to:

Develop an e-Business solution models

Distinguish B2B from B2C

Develop B2B business models

3.1 Why should we care?

No, you are not. It is absolutely possible. In fact, it is happening even as we speak. Many perceive this transform as a business financial improvement strategy. Some perceive it as survival strategy. In our opinion, both are right. The following sections look at what B2B is and explain how you can participate in this trend in a reliable fashion ahead of your competitors and with your partners.

3.2 What is B2B?

First, what is B2B? What is e-Business? Are they related or even the same thing? What do they have to do with business transformation? Let's start the argument by attempting to define e-Business appropriately. Some have defined e-Business as "every sort of business you conduct over the Web." Maybe others focus on the "e" portion of e-Business. We focus on the "business" portion of e-Business.

For example, let's say an auto maker has published their Web site to advertise new models, their company, and various events around the world that they sponsor. The site is always refreshed with the current information on a daily basis. Can you call this e-Business? According to the first definition, yes, you can. But does it impact the "business" in a critical fashion? Can the company afford for the site to go down for a couple of hours? How about a couple of minutes? Can it ever afford to lose the online service at all? If it's going to be an e-Business site, the answers to these questions should be "yes". If the answer is "no", it is not an e-Business.

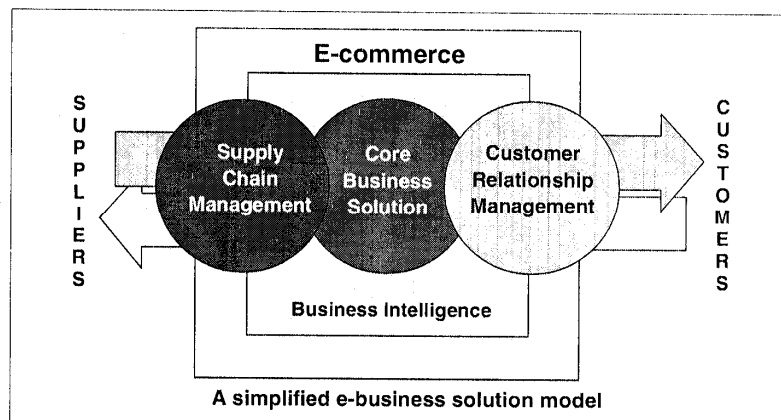


Figure 1. e-Business definition

Look at Figure 1 In the middle of the picture is the "Core Business Solution". You may call it differently, for example: an ERP system, LOB, back-end application, or even a legacy system.

3.3 Business Intelligence

A simplified e-Business solution model

customers, it is an RPG application. No matter how you call it, that is your existing core business engine and that's where the real power is. What is business transform? It is the process of extending the power of the existing applications set to your Internet, intranet, and extranet audience so that they can access the core applications set, basically at their finger tips through a Web browser.

This introduces new layers of application processes such as:

- **Supply Chain Management (SCM)**: For your suppliers' audience to access your core
- **Customer Relationship Management (CRM)**: For your customers' audience
- **Business Intelligence (BI)**: For your internal staff such as sales, planning, marketing, and business executives, and e-commerce, which allows your customers and business partners to purchase your goods and track orders over Internet

Our definition of e-Business is to "transform key business processes by leveraging traditional IT and Internet technologies". This is exactly what we mean by B2B. It is why and how you should transform the business processes. Before we continue, let's summarize some of the terminology:

- Synonyms referring to existing business applications are:
 - Core Business Solution
 - LOB (Line-Of-Business)
 - Back-end application
 - ERP system
 - Transactional system
- Extending the existing business application to an Internet audience includes the terms:
 - e-Business
 - B2B
 - Business transform

Of course, each of these names carries its own meaning. Maybe it is not fair to generalize these names and group them together as if they are really all identical. But remember we are talking at a conceptual level, and at that level, they make sense.

3.4 Comparing B2B with B2C

We all understand what B2C is. That is the business of buying and selling over the Web. That is online shopping. That is Amazon.com, eToys.com, and Nordstrom.com. This is already part of our society and is rapidly becoming one of the key staples of it.

So how is B2B different from B2C?

Look at Figure 2. In the upper left corner of the picture, a little boy is drinking milk. When he's out of milk, his family buys more milk via a transaction that could take place at a local food store *or* via the Web. This is marked as 1 in the picture and is where the B2C action takes place. This simple B2C transaction will spawn a numerous number of following transactions between so many different business organizations. As you can easily see in the picture, all the transactions from 2 through 10 are B2B transactions.

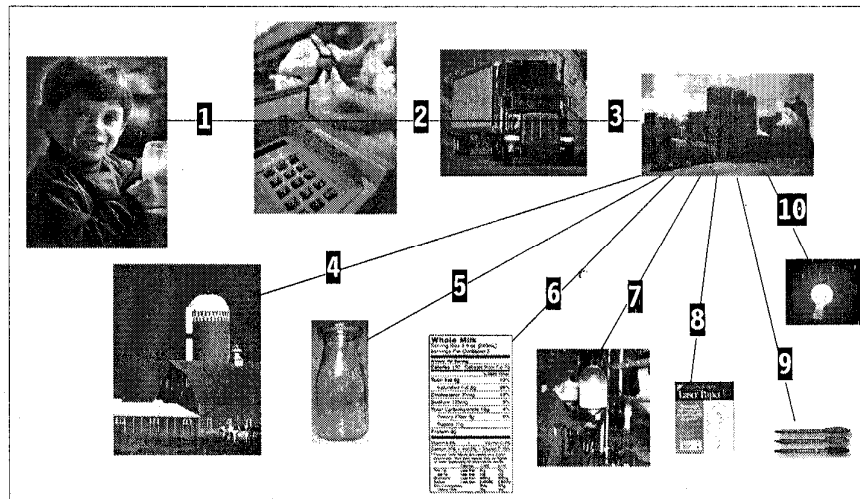


Figure 2. B2C to B2B ratio

3.5 B2B differences from B2C

At this point, it is beneficial for us to summarize the differences between B2C and B2B.

Different connection topology

You may want to put your B2B server deep in your trusted intranet loop and give tight access control. You will want to open the access authorities only to those trusted business partners or internal staff. In the case of B2C, you might not want to enforce the same level of access control rules simply because it will not make much business sense.

Therefore, you might consider putting your B2C server within the demilitarized zone (DMZ; describes a place in your network between the public Internet and your internal intranet). Let each business process go through the security control mechanism whenever they need to come to the core part of your business engine, which resides beyond your bastion firewall.

Different system capacity requirements

The B2C server should be optimized from the performance perspective to handle a large number of concurrent requests at the expected peak time. Literally you have no control over this type of workload, and you need to be prepared for the worst (but the best for your business). At any

rate, the most important requirement here is to provide the acceptable response time to each online shopper.

In case of B2B server, however, what's more important here is reliability and the availability of the services. It's common in this setting that a single unit of work will involve multiple transactions with multiple data updates in multiple DB files so secured commitment control is a must feature to be implemented.

Different types of purchases and authorization

Compared to B2C, B2B has these characteristics from a purchase and authorization perspective:

- Scheduled, repetitive
- Larger quantities and dollar value
- Open Requisitions (POs)
- Different authorizations within business customers
- MRO purchases

Maintenance, Repair, and Operations

- Direct purchases (Supply Chain)
- Often by SKU
- Unique contracts and terms and conditions for different business customers

Different personalization

In the case of B2C, the most common personalization technique is analyzing the favorite goods that the online shopper has and trying to provide the best candidates for their additional purchases. For example, let's say you run a book store on the Web. If you have a customer who has a pattern of buying detective novels, you can personalize their site to introduce new detective novels in the market on their next visit.

In the case of B2B, the customer may be a procurement officer for a company. For this customer from their business perspective, a volume purchase discount rate table, for example, may be more important than the preference of packaging.

3.6 What's driving the adoption of B2B

There are a number of factors that drive B2B, but the three most important driving forces of this trend are:

- Business exerting their buying power
- Businesses expanding their market reach
- Businesses reducing the cost of transacting business

3.6.1 Business exerting their buying power

B2C buying power and its consequences – the risk of lost business – can be quite significant. In the case of B2B, this can be enormous. In many cases, an unfortunate incident of consecutive mistakes can drive a company out of business.

3.6.2 Businesses expanding their market reach

You can expand your market reach through proper and efficient management of an electronic catalog or electronic configurator that provides:

- Integrated enabling infrastructure
- Can integrate with existing back-end systems
- Improved service to buyers or distributors

3.6.3 Businesses reducing the cost of transacting business

When you think of every business organizations' primary goal of increasing profit, there are always two ways of achieving that goal. The first way is to increase the revenue. The second way is to reduce the costs. Many view B2B as a way to increase revenue, but B2B has a larger much larger potential of increasing profit by decreasing the operations costs of a business organization. This can be achieved by reducing the following costs:

- Search costs or information costs
- Bargaining costs or decision costs
- Policing costs or enforcement costs

3.7 B2B business models

In B2B computing, there are three emerging models. They are represented in:

- Buy-side
- Sell-side
- e-marketplace

This is not a model, but such as agreement plays an important role in this area. You should understand how these models map to the needs and capabilities of your customers' companies.

Procurement step Before Now

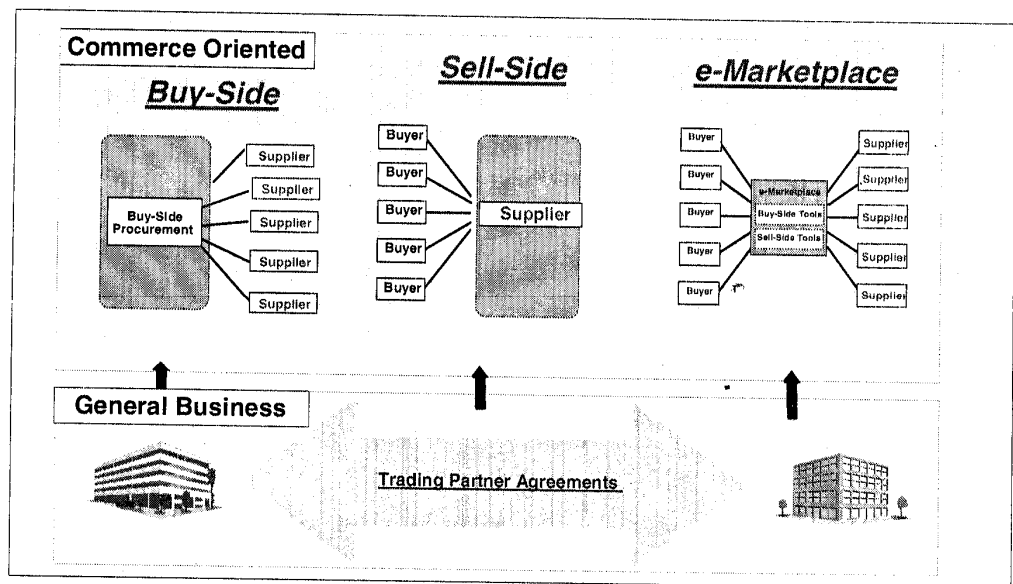


Figure 3. B2B business models

The following sections examine all three of these B2B business models.

3.7.1 Buy-side model

A buy-side solution, also known as a *one-to-many model*, restructures the procurement process within a company.

In this model, multiple catalogs (and specific items within those catalogs) are consolidated with negotiated prices and any necessary pre-authorizations to provide a consistent interface to the company's buyers. For example, a buy-side solution might offer a computer-based interface that presents the company's furniture buyer with only those pieces of furniture that have been pre-authorized and approved for purchase. This sort of buy-side model eliminates rogue buying and guarantees that the company has the best pricing and volume discounts.

3.7.2 Sell-side model

While the buy-side model represents a one-to-many relationship, the sell-side model has a many-to-one relationship. The most common implementation of a sell-side B2B application is posting a catalog on the Internet that is available to other businesses. The analogous model in the B2C space is Amazon.com. However, in the B2B model, the buyers are not the end consumers that are buying books. Instead, the distributors that are buying the product from the manufacturer are the consumers.

This model allows the procurement staff to view all products, enter their own orders, and check the status of an order. Sell-side solutions also enable companies to apply the information they have about their customers to tailor the message that the Web site presents to each customer. Customization can maximize revenues from cross-selling and up-selling. This model provides marketing departments with a level of granularity and detail that they could only have dreamed of in the past.

3.7.3 e-marketplace model

The third emerging B2B model is the wave of the future. This model is also known as many-to-many, metamarkets, EcoNets, online marketplaces, and others. We refer to these markets as "hubs and spokes". Types of e-marketplaces include online auctions, exchanges, and vertical portals. Businesses require robust, efficient software that enables the spokes to connect to multiple hubs.

3.7.4 Trading Partner Agreement (TPA)

Companies engaging in B2B e-commerce – regardless of the model they are in or whether they are suppliers, buyers, or an e-marketplace provider – all need a certain set of business rules. They also need a common data structure so that they can exchange required data without any confusion or problems. Trading Partner Agreement (TPA) provides that method.

We attempt to illustrate this with an example. Consider an auto parts manufacturer who sells to a major auto maker. These partners could implement a TPA to streamline their communication, as follows:

- The auto maker creates the TPA (using an editing tool) and sends the parts manufacturer a tpaML “XML (eXtensible Markup Language)” template containing its vital information.
- The parts manufacturer adds vital information about itself to the template and electronically returns the completed TPA.
- The TPA is processed (at both locations) by a code generator. The customized B2B integration software is created, which enforces the rules of interaction established in the tpaML.
- The auto maker can issue a purchase order electronically to the parts manufacturer. Acknowledgement or modifications to the order can be transmitted back to the auto maker.

3.7.5 Why is it important to understand these B2B models?

Understanding these B2B models is important for two main reasons:

- Reason 1: It is expected the whole industry will evolve based on these models.
- Reason 2: These are the models we adopted to explain almost everything for the rest of the B2B part, which includes connectors, solutions, and services.

3.8 B2B: Not writing new applications but transforming existing ones

B2B (or e-Business) is not about writing a whole new set of applications to replace existing ones. Although this is could be an option, it is a questionable alternative in terms of feasibility and justifiability. Instead, you should extend your existing applications to both the Internet and your intranet. To do this, you need *connectors*, which are defined in the next unit.

3.9 B2B: Connectors

What are B2B connectors? B2B connectors are the technology used to integrate your business to your suppliers’ and buyers’ business to avoid manual processing of business-to-business transactions. This, in turn, reduces processing time and transaction costs.

Connectors: What and why?

Because e-Business is an evolving process, integration with customers, suppliers, e-marketplaces, and your back-end (legacy) systems is a key issue. This section looks at various options available for integrating your Web application with your customers, suppliers, e-marketplaces, and your back-end applications. Connectors do not give you a ready-to-run application. Rather, they provide universal access from your Web application to your existing data, applications, and transactions. They

help you transform your business to an e-Business without making major changes to your existing applications.

3.10 Enabling new business processes

There is a requirement for the customer, supplier, and e-marketplace in the new front-end process, as well as for the back-end process that you must integrate with your legacy applications.

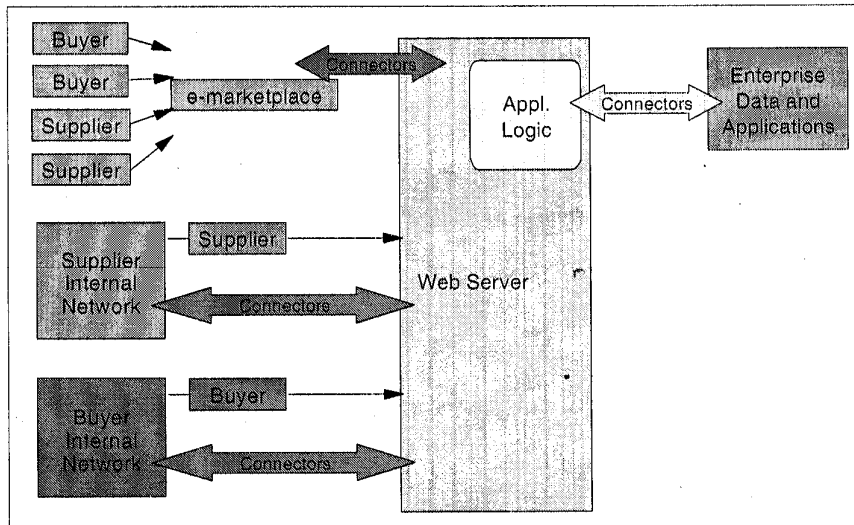


Figure 4. Common view of the connectors for the new B2B processes

Each e-marketplace, buyer, or supplier uses a different business protocol to communicate with the outside world. As a versatile application, your application should be able to talk to these different business protocols.

There are three different types of B2B scenarios when you deal with outside applications:

- **e-marketplaces**

Your Web application can act as a supplier or buyer in different e-marketplaces. You could buy or sell products with different e-marketplaces.

- **Supplier network integration**

Your Web application can interact with a supplier's internal network directly from your procurement system.

- **Buyer network integration**

Your Web application should be able to provide both a remote and local catalog for the buyer network. Depending on your business transaction, you need to interact with your back-end legacy or ERP application components. Based on the type of business transaction and the back end involved, there could be various ways in which connectors can be implemented. Some examples include MQSeries, API calls, Remote Function Calls, Remote Procedure Calls, JDBC, DB2 Extenders, and so on.

Figure 5 shows how you can use various technologies to connect and integrate your Web application with back-end applications and the outside world.

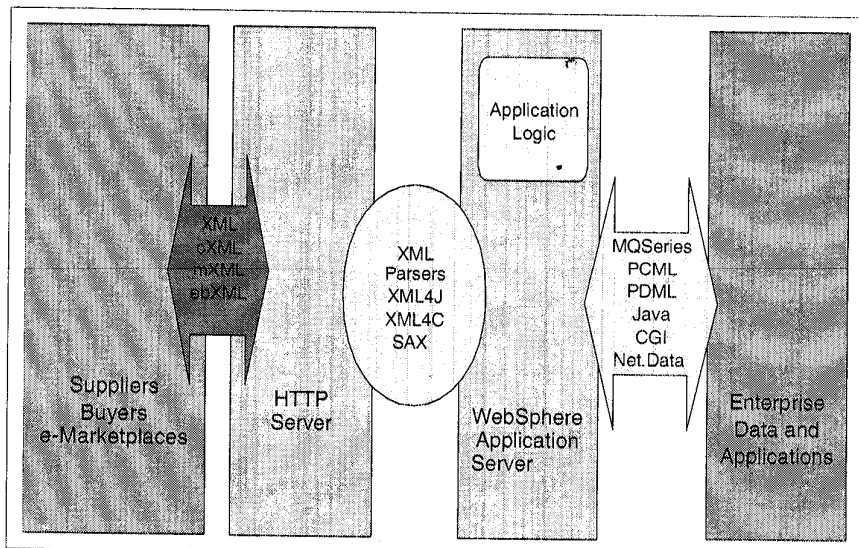


Figure 5. Various technologies used to integrate and connect your Web application

The entire integration of your Web application with the outside world and internal systems can be divided into three stages:

1. Communication with the outside world

Communication with the outside world is done through XML documents or a different type of XML, such as cXML by Ariba SupplierLive or mXML by Metiom and so on.

2. Front-end processing

Front-end processing involves converting and validating an XML document to a form that is recognized by your Web application. For this reason, various tools and technologies are used. Such tools include XML parsers like XML4J (XML Parser for Java) or XML4C (XML parser for C++). Document Type HTTP

Definitions (DTD) are used for validation and describing the relationship within data.

3. Back-end processing

Back-end processing involves communication and integration with your back-end or legacy applications. For this reason, you can use such technology as MQSeries, a Java application, Program Call Markup Language (PCML), or Panel Definition Markup Language (PDML).

3.11 Connector technologies and products

B2B, then, is the art and science of connecting your business logic and processes to other business logic and processes. Connectors, such as WebSphere Application Server, AS/400 Toolbox for Java, MQSeries, eXtensible Markup Language (XML), Net.Data, Common Gateway

Interface (CGI), and CORBA, all provide you with the mechanism to make these connections.

3.11.1 WebSphere Application Server

You can use WebSphere Application Server (WAS), along with the HTTP server, to run the front-end process of the third-party request. WAS can provide the services for the application servlet engine to run your servlets, with the HTTP server providing the HTTP protocol handling. WAS supports XML document structures and can generate, validate, parse, and serve XML documents.

General considerations

The most remarkable effect of using the Internet for business is its broader coverage of geographies. You can extend the reach to every corner of the globe thanks to Internet technology. Otherwise, it is impossible. Wherever the server is located, the information is just a click away from a browser. This draws an interesting consideration of the languages that have to be delivered and whether you need multiple systems to serve more than one language. The server is ideal, because it has well-architected multilingual support functions for the system administration and user application programming.

To serve users better, who are the customers and potential customers, be careful to examine which language is acceptable in the Web pages. If you have to serve in more than one language, think about how you set up and manage the server to achieve the multilingual services.

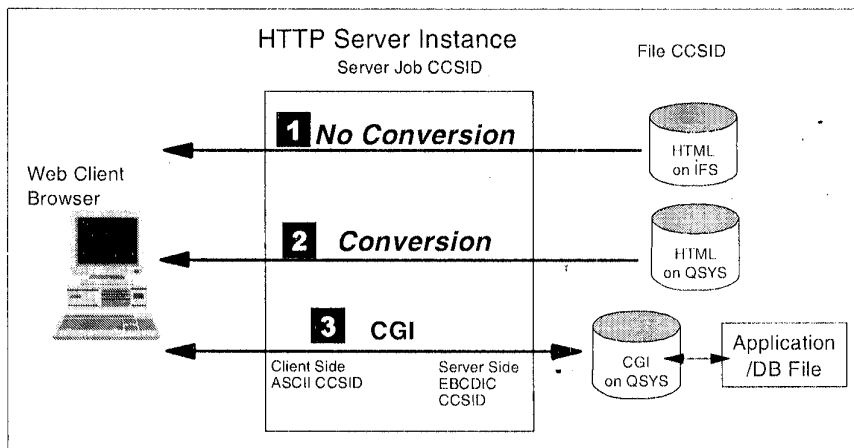


Figure 6

Consider the following points:

- If the page (HTML in the figure) is from an IFS file system, it is not converted.
- If the page is from qsys.lib, it is converted to the CCSID associated with the HTTP server job.
- If the CGI is used to serve the page, the data is converted to the CCSID configured for the HTTP server instance.

If the CCSID, which is set up in the HTTP server, does not match an expected CCSID, which is used in the browser, the characters that are displayed may be meaningless.

There are two types of information regarding Web publishing:

- **Static page:** The contents of pages do not change.
- **Dynamic data:** Some contents of pages change, depending on time, user requested data, and so on. The contents may come from database files.

Static page

Building e-Business sites: Phased approach” the static page is the first phase for doing e-Business. This is also the easiest scenario in terms of multilingual services. Focus on the Web pages to be published and translate them or create new pages for other languages. The following list shows the technique and functions to leverage:

- Different directory for each language:

Divide the Web pages depending on the language that is displayed on a browser. The users, through a browser, click the button designated to the language. This is the simplest solution. You do not have to set up the server separately for the language, but you have to choose one language for the very first page that may not be understandable for some users. Perhaps English is the least common denominator for the first page with the buttons captioned by their languages. In this scenario, it is assumed that all pages are stored in the integrated file system in ASCII encoding, so that no text conversion takes place.

- Multiple HTTP server instances to server multilingual sites in one system:

Set up one HTTP server instance for each language. Then let users know the appropriate URL for the language. The URL may be a different host name or a different port number. In this scenario, the pages can be stored in both the qsys.lib file system and integrated file system. You can configure each server instance to convert data residing in qsys.lib to an appropriate ASCII encoding.

- Synchronizing data between multiple home pages or instances: There is no tool to synchronize the multiple pages and instances. You have to maintain each one manually every time you change the contents.

Dynamic data

When data is retrieved from other resources and stored in Web pages, the application programs need to account for the multilingual environment. For example, when a customer name is retrieved from a database file, the application needs to know from where the data is retrieved. It may be in a different record in the same file, in a different field in the same record, or in a different file. It depends on how you develop the multilingual programs. The following list outlines the considerations for a multilingual environment:

- **Different directory for each language:** If data is retrieved from a database and needs to be converted to different languages (that is, to different ASCII CCSIDs), your application program needs to convert the data based on the language that the other end (browser) uses.
- **Multiple HTTP server instances with CGI:** This is similar to the discussion in B.2, “Static page”, but there are programming considerations, such as the places where the data is stored. As mentioned before, the CGI program may have to retrieve the data in a different database file or in a different record depending on the database design, for the matching language that the browser user is using. After retrieving the data, the HTTP server converts the data to ASCII CCSID.
- **Domino server:** The Domino server is the NLS capable product. It uses UNICODE for internal character representation, which can represent all possible languages. Domino documents are tagged with the language that is used by the Notes user and stored as it is. It is up to the Notes users to display and type in the correct language. That is, when a French Notes user enters French text, other French users can see the text in the correct character images, but German users may not. If data comes from database files, the story is different. It has to be converted from one CCSID to another, that is EBCDIC CCSID to ASCII CCSID even within the same language. Since Domino does not tolerate the locale values associated with the QNOTES user profile for this conversion process, it is not possible to convert to multiple CCSIDs. If you want to serve more than one language to end users, you need more than one system that runs a Domino server.
- **WebSphere:** Since WebSphere runs on top of the HTTP server, the same can be applied as in the HTTP server considerations.. It may be easier to code the multilingual application.

3.12 Browser (client) considerations

When you browse Web pages, use the appropriate language version of the browser or operating system. Otherwise, you may not be able to see the text as it is supposed to be displayed. For example, when you read the Japanese text on your browser, use the Japanese version of Windows operating systems. Japanese text displayed on the English-language version of Windows 98, for example, does not make sense at all. Microsoft Internet Explorer (IE) offers the ability to display many languages, including DBCS languages, on the English-language version of Windows operating systems. Simply download the fonts that you want to see from the Microsoft IE sites.

4.0 Summary

The title of this unit says it all. It transforms your business processes, the way you do business to achieve your business goal better, to thrive

in your business area, to lead the pack of the industry, and in many cases, to simply survive. You achieve this transformation by transforming your existing *core* applications into *Web-enabled* applications.

5.0 Conclusion

At the same time you are moving forward, you also want to ensure that you are not losing your “feet on the ground” perspective and understanding of the value your company delivers to its industry and the relationships you have built with your trading partners and customers. Often, B2B can be defined as “back to the basics”. That means preserving your core-Business value and logic while extending your reach is the ultimate business goal. You question, “Changing the way we do business in a revolutionary fashion? And we do this along with our business partners? Not just that but the whole industry and community and the world move together in a same direction? Are we dreaming?”

6.0 Teacher Marked Assignment

- 1a. Compare B2 with B2C
- b. What is driving the adoption of B2B
2. Why is it important to understand B2B models

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Unit 3: **Building a Web presence site**

Table of Content

1.0 Introduction

3.0 Objectives

3.0 Main Content

3.1 Establishing a Web presence

3.2 Technology and architecture definitions

3.2.1 Web site

3.2.2 Web pages

3.2.3 HTML

3.2.4 XML

3.2.5 Cascading Style Sheets

3.2.6 CGI

3.2.7 JavaScript

3.2.8 Web browser

3.2.9 Domain name

3.2.10 Web server

3.2.11 Security policy

3.2.12 Administration controls

3.3 Pre-site considerations: Planning the site

3.3.1 Determining the site's purpose

3.3.2 Understanding the site's audience

3.3.3 Developing a Web site

3.3.3.1 Planning your Web site

3.3.3.2 Creating the Web site

3.3.3.3 Web page

3.3.3.4 Testing your Web site

3.3.4 Publishing the Web site

3.3.4.1 Moving the site to the destination server

3.3.4.2 Making search engines find your site

3.3.4.3 Announcing your site on relevant news groups and
bulletin boards

3.3.4.4 Advertising on major sites

3.3.4.5 Advertising through other media

3.3.5 Site maintenance

3.3.5.1 Maintaining links

3.3.5.2 Tracking site activity

3.3.5.3 Keeping users up-to-date on content changes

3.3.5.4 Maintaining version control

4.0 Summary

5.0 Conclusion

6.0 Tutor-Marked Assignments

7.0 References/Further Reading

1.0 Introduction

This unit provides a detailed description for each step to establish a presence on the Web. We selected the case of building a Web presence site because every one has to pass this stage. Plus, the methodology remains valid for transactional and dynamic data types of Web sites.

2.0 Objectives

At the end of this unit you will be able to:

Understand by different type of websites

Identify the tasks in Establishing a web presence

Build a web presence site

3.0 Main Content

3.1 Establishing a Web presence

There three different types of web sites: Intranet, Extranet, Internet. All three use the same technology. The difference is who can see the information. On the Internet, everyone with Internet access can view your Web pages. On an intranet, only people within your company can view the information. On an extranet, only people your company works with, for example suppliers and distributors, can access the Web site. The type of information to publish on the Web site determines the type of Web site. To establish a Web presence, you need to accomplish these tasks in order:

Read about the technology you need to achieve a Web presence. Understand what your environment should look like and what technology is required at each stage of the Web presence development cycle.

Learn about what needs to happen before one Web page is produced. In this pre-Web site stage, you set the business objectives you want the Web site to reflect.

Learn about the process of developing a Web site.

Look at ways to publish the site to ensure that people visit it.

Understand which products allow you to build a Web presence and be prepared for the next phase of e-Business, the dynamic site.

3.2 Technology and architecture definitions

This section describes the terminology of the technology required (or available) for a Web presence in e-Business. The components are displayed in Figure 1 and discussed in the following sections.

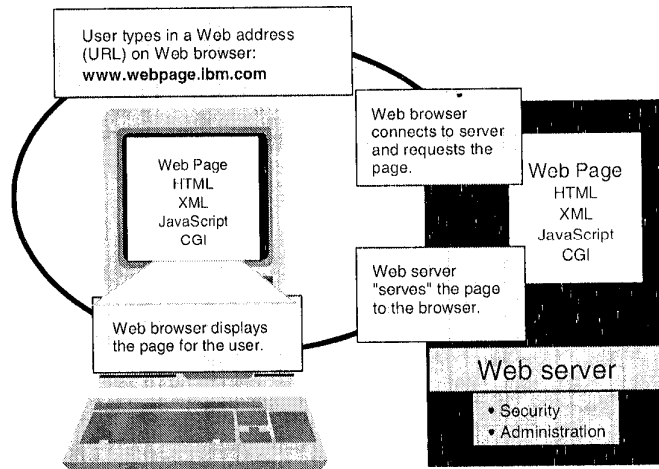


Figure 1. How a Web server works

3.2.1 Web site

A Web site is a linked collection of Web pages in an organized structure that resides on a Web server. The Web site is identified by a Universal Resource Locator (URL), which is the Web address, through a Web browser.

3.2.2 Web pages

Web pages display text and graphics through Web browsers. Create these pages in HTML, or a combination of HTML and XML, because each are markup languages. Then, add CGIs and JavaScript to add interactive functionality to the Web pages.

These two languages are discussed in the following sections.

3.2.3 HTML

Hypertext Markup Language (HTML) is a simple authoring language to display content over Web browsers. It allows for the “mark up” of content with

tags and tag elements so a Web browser can read it. You can create HTML

code with any word processing software. However, special Web-authoring

software allows you to add more style to your Web pages without having to

remember all the HTML tags.

3.2.4 XML

eXtensible Markup Language (XML) is a markup language that assigns meaning and structure to the content of Web pages. XML is a subset of the Standard Generalized Markup Language (SGML) for defining markup languages to represent structured data. Many say that XML is to data as HTML is to display. The main point of XML is that, by defining

your own markup language with the Document Type Definition (DTD), you can encode the information of your documents more precisely than is possible with HTML.

3.2.5 Cascading Style Sheets

Cascading Style Sheets (CSS) describe how content appears on the Web. Unlike HTML, where a designer gives tag elements the same description repeatedly, a designer describes, with one style sheet, how a page or a group of pages looks.

3.2.6 CGI

Common Gateway Interface (CGI) is a programming language that allows Web pages to call applications for use within the Web site. CGIs are commonly used to display dynamic data on Web pages. However, you can use them to allow searches of your Web site and offer dynamic links to static information.

3.2.7 JavaScript

JavaScript is a scripting language that allows users to interact with Web page information. All the code is defined in one HTML page and doesn't have to call any applications to work. For example, when you roll your mouse over an image on a Web page, the interaction changes the image.

3.2.8 Web browser

A Web browser is a client program to initiate requests to a Web server and display information that the server returns. Netscape Navigator and Internet Explorer are the two most popular Web browsers

3.2.9 Domain name

A domain name is a name that your Web site is known as on the Internet. This is your Web address. For example, ibm.com is the IBM domain name. The domain name represents your Web server's IP address on which your Web site resides. Also, the domain name is a part of the Web site's URL, for example: <http://www.ibm.com>
You can sign up for a domain name through a number of registrars.

3.2.10 Web server

A Web server is an application that transmits a file to a Web browser. The Web server serves the pages to the user through a Web browser. The general sequence of operation for a Web server is:

1. A Web browser requests a document.
2. The HTTP server sends the requested document.
3. The Web browser interprets the document and displays it.

3.2.11 Security policy

A security policy is a plan to secure the files on the Web server and the access to Web pages viewable through a browser. On the server side, you secure files at the file or directory level on the Web server by limiting access to who can manipulate them. At the browser level, you can limit access to who views the Web pages by setting up an authentication application.

3.2.12 Administration controls

This is an application to measure the number of times a user accesses a Web page and delivers tracking reports to show the amount of activity on your Web server. This is important for expansion purposes. When you know which pages are the most popular, you can expand your Web site in that direction and scale your server resources accordingly.

3.3 Pre-site considerations: Planning the site

This section takes you through the steps that are necessary before you write any Web pages. Prior to developing the site, set the business objectives you want the Web site to achieve. Determine the site's purpose and ensure that the content is what your potential audience needs.

3.3.1 Determining the site's purpose

Before you code one page of HTML and place it onto the World Wide Web, you need to realize what the Web means to your company. It means a global presence. Your Web site and information about your company and its products are viewable by millions of people all over the world. A Web site that is created well is important to your company's image.

Answer the question: Why do you want a Web site? Consider these criteria:

- Do you want to inform people about your products and persuade them to place orders?
- Do you want to persuade other businesses to do business with your company?
- Do you want to inform people about your company?
- Do you simply want to be on the Web because everyone else is?

Thoroughly understand every reason why your company wants a Web site.

Here's an exercise that describes how this activity is done:

1. List all of the reasons your company wants a Web site. For example, I want a Web site because:
 - My competitor has one.
 - I want new customers.
2. Translate those reasons to state a purpose. For example, the Web site will:
 - Give me an equal presence on the Web as my competitor.

- Show people why these products best fill their needs.

A typical site about a company includes this information:

- About the company
- Products
- Services
- What's new
- Contact us

Regardless of the content you place on Web pages, it must follow the site's purpose, which is the site's reason to exist in the first place.

3.3.2 Understanding the site's audience

In this stage, you need to determine:

- The demographics of the audience
- What the audience needs from your Web site
- What the audience can do with this Web site
- The kind of technology your audience uses

Each of these considerations helps you determine the information to place on the Web pages. For example, if you know that your existing customers are small to medium businesses, ask how you can target information about your company to this market segment.

The audience's needs and what they can do with the information drives the type of content you should place on the site. For example, if a large number of your customers often need to know local sellers of your product, include a Web page that lists the local sellers.

Knowing what technology your audience has can prevent your site from scaring away visitors with inaccessible pages, long loading times, and annoying animations. Creating Web pages that have large graphic files inconveniences the audience because they take forever to load.

Consider how people see the information you present before investing time and money into developing the latest and greatest Web site, only to find out your audience can't view it. You should know what modems, browsers, and plug-ins they have, as well as the screen size they use.

3.3.3 Developing a Web site

When you turn the Web site's purpose into a statement, you create project objectives. This section describes the development cycle for Web sites. Once you complete these steps, your Web site is ready to be published. The Web development cycle stages consist of:

- **Plan:** You've completed most of this phase by determining the site's purpose and audience. Other planning tasks, such as establishing and understanding the budget, schedule, equipment, and staff, can take place with regular project management procedures.
- **Create:** Create the design of the site, the content, and the code.
- **Test:** Have multiple people go through your site to ensure all the links work and the content is correct. View the pages through different

browsers and different types of computer displays to ensure that all the colors and pages appear and work as you intended.

3.3.3.1 Planning your Web site

You've established the project objectives by determining the site's purpose.

The rest of the planning phase involves typical project planning such as staff, budget, schedule, and assessment.

3.3.3.2 Creating the Web site

In this stage, you need to design and produce the Web site and pages. This unit covers the elements involved in this stage.

The Web site design tasks include:

- Organizing site structure
- Determining content that fills the structure
- Labeling the categories

Organize the structure and organization of the information you want to present on the site. A hierarchical structure is common for a simple Web presence. Ensure that as people navigate throughout your site, they always understand where they are and where they are going.

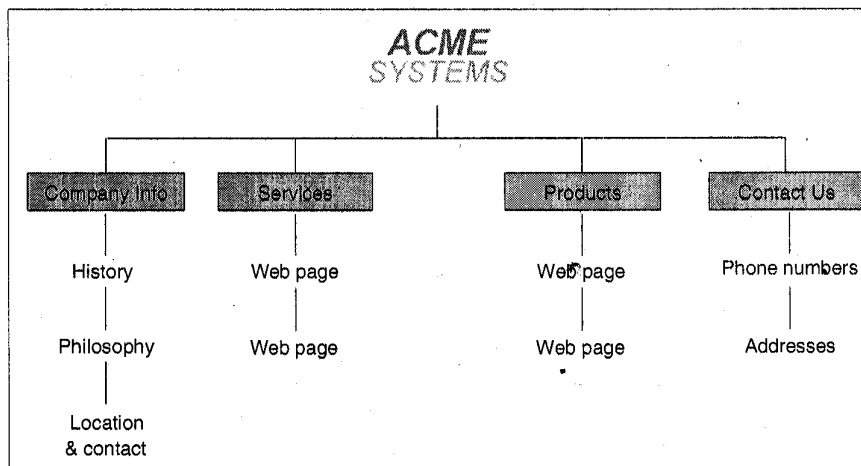


Figure 2. A simple site hierarchy

All information that goes on this site should fall under one of the listed categories. If it doesn't, consider whether that information is appropriate for the site's purpose. The content is categorized according to this structure, and each category needs a label. Labelling is more complex and goes beyond the scope of this unit. It is important to consider labelling because it's how your audience can navigate throughout your site. Label each category with terminology appropriate for the audience. If people cannot find the information they need within your site, they leave it with the click of a mouse. Do your homework and make sure your site speaks the audience's language.

3.3.3.3 Web page

Web page design includes the following elements:

- Laying out the pages
- Determining the text and graphics for the pages
- Designing the navigation

As you design the Web pages, ensure they follow the site's purpose and match the expectations of the site's audience.

The production stage of creating Web pages involves the actual coding and file management. Your pages can be simple HTML or involve CGI code and JavaScript to add a dynamic and interactive element to the Web page's appearance. An example is shown in Figure 3.

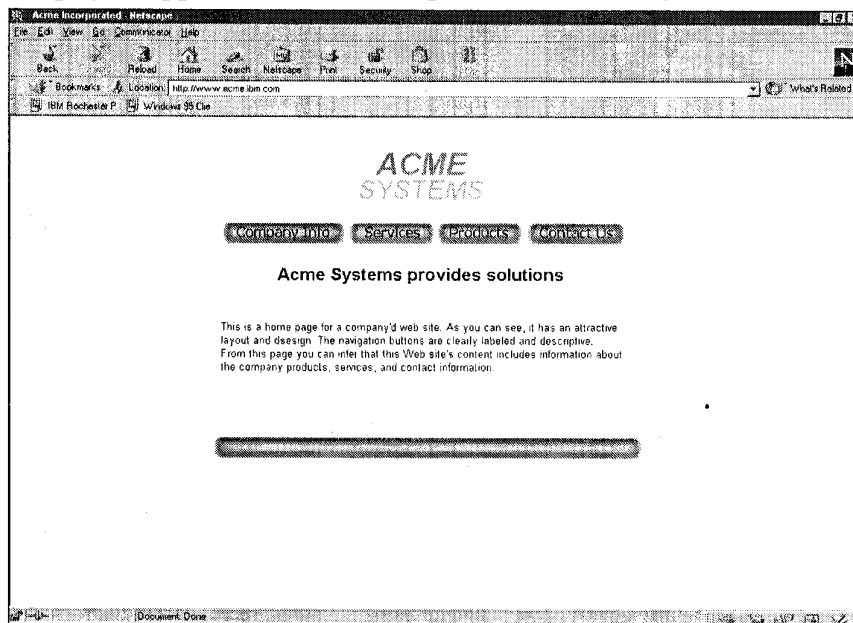


Figure 3. Sample company home page

Consider using a template for all the Web pages in each category to ensure consistency for your users and easier implementation for the developers. If you do not have the design skills necessary to complete this part of the process, give it to someone in your company who has experience with Web design and graphic design. This part of the development cycle is about design.

It's important to test the initial templates for how they look on different browsers and browser versions because of functional differences. Also, view the templates over different speed modems. A 47 KB Web page takes a lot longer to load over a 28K modem than a LAN connection. Because many Web site's require the work of several developers and designers, construct file management procedures for the staff. This ensures that all work can be accounted for and there are no file overwrites.

3.3.3.4 Testing your Web site

To ensure that anything with your company's name attached to it works perfectly, test the information. The steps to test your Web site are:

1. Stage the site.
2. Conduct quality assurance test.
3. Conduct performance testing.
4. Observe users accomplishing a set of tasks.
5. Test in the client environment.

Staging the site

As you develop Web pages, move them onto a shared Web server that is protected from public view. This gives you more accurate test results because you are viewing the site as if it was on the World Wide Web.

Conducting quality assurance tests

There should be a final check on the content to make sure everything is correct. Ensure the following points:

- Standard spelling and correct grammar
- "Alt" attributes are set for all graphics
- Links go to the correct locations
- Pages, graphics, and scripts display and behave correctly

Conducting performance testing

Ensure that your pages load quickly over slower and faster modems. Long page loading times are an inconvenience for the user.

Observing users accomplishing a set of tasks

Ask users to accomplish a set of tasks with all the pictures and text in place.

Verify that:

- Users can find the information they need to find
- Users know where they are in the site
- Users know what is a link and what is not a link
- Users can see important information immediately

Testing in the client environment

Web pages can look and behave very differently depending on the browser, operating system, screen resolutions, and Internet connections. The appearance of colors vary based on what monitors the users are using. The only sure way to obtain an accurate picture of how your site looks is to view the Web pages on their systems. Test your pages on all targeted browsers. The following items, in particular, behave differently across different browsers and browser versions:

- HTML and HTML extensions
- JavaScript and other scripting code
- Page layout

Making a backup

Make a backup so that, if necessary, you can restore your files to the server.

3.3.4 Publishing the Web site

Your Web site is ready to go and you've tested it exhaustively. Now it's time for the world to know your company is out on the Web. This section discusses the final steps to accomplish to publish your Web site and advertise its existence.

3.3.4.1 Moving the site to the destination server

Move the site to the destination server where it will be a part of the World Wide Web. If availability is important for your site, make this move during a low usage time such as during the middle of the night. If the files take some time to copy, you may want to take the servers off the network temporarily so that the site is not corrupted with a combination of old and new files.

3.3.4.2 Making search engines find your site

Search engines look for meta information about your site to see if it matches terms for which people are searching. This meta information, or information about the information, is in the form of meta HTML tags. Place descriptive words, key words, subjects, and search terms, for example, in these meta tags to ensure that search engines find your site and return it to a user.

3.3.4.3 Announcing your site on relevant news groups and bulletin boards

Internet news groups are a great way to reach a targeted audience. Many Web users read news groups, and there is no fee for sharing information. Your news group notice should read as a pointer to information of interest rather than as an advertisement. Follow the etiquette and rules of the group.

3.3.4.4 Advertising on major sites

Some sites for Web searches, such as Yahoo and Netscape, provide a way for you to advertise your site. Large numbers of Web users visit these search engines, and you can reach some of these people with an advertisement. These sites charge fees to place ads, so this suggestion applies mainly to commercial sites.

3.3.4.5 Advertising through other media

Attract users to your site by advertising in other media. Radio, television, billboards, and store signs all provide ways to advertise your site. Advertise your company's Web site address on all communications from your company. Place the address on e-mail signatures, business cards, company stationery, and company brochures. Remember, your Web site now holds information about your company. The site is the brochure that describes your services, the sales person that sells your

product, and the packaging in which you wrap your company. Most of all, the Web site is an important part of your company's image. Place the Web site address anywhere you want your company's name to appear.

3.3.5 Site maintenance

Once your site is published, keeping it current and working 24 hours-a-day and 7 days-a-week is crucial. If your Web site is down or a link is dead when a customer visits it, they walk away with the impression that your site and your company are unreliable and in ill repair. Keep in mind the important steps explained in the following sections when you manage your Web site.

3.3.5.1 Maintaining links

Broken links frustrate users. Check all of your links periodically, and correct or remove the ones that no longer work. Check an external link more than once before you delete it. It may be only temporarily inaccessible if its server is down.

3.3.5.2 Tracking site activity

The more you know about user activity at your site, the better prepared you are to plan future updates. Tracking reports generated by server software provides you with the following information:

- The number of visits your site receives, which indicates how well it is advertised and how popular it is with users
- The number of disconnects, which indicates technical problems that need correcting
- The pages users link from when they connect to your site, which can help you refine your advertising strategy and even make you aware of categories of users you had not previously considered
- The order in which users view your pages, which help you assess your navigation and information design

3.3.5.3 Keeping users up-to-date on content changes

When appropriate and practical, tell users what content you changed and when you changed it. This information helps them find new material easily.

Provide a "What's New" section that displays from the home page, or link directly to the new material from your home page.

3.3.5.4 Maintaining version control

Keep all versions of your site organized so you can update files or refer to previous versions efficiently. Maintain the naming and file directory system you established during the original development of the site. Continue to back up your files and store them safely. Document your

procedures for naming and structuring files so others can learn your system easily.

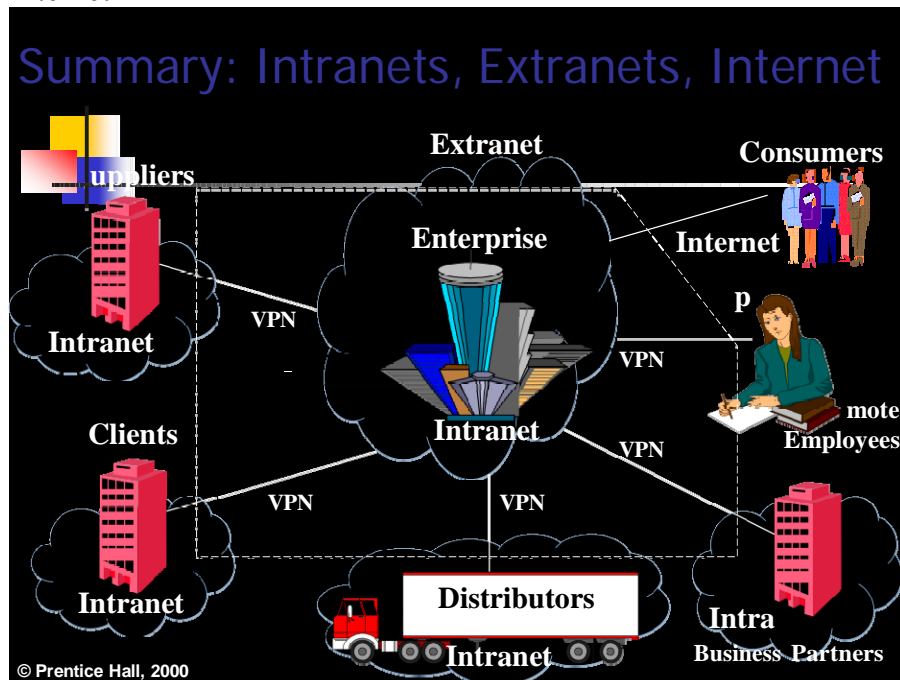
4.0 Summary

This unit provides information that is necessary to establish a Web presence. With this information, you will be able to publish a Web site to convey information about your company, products, and services. Millions of Web viewers can access information about your company and products through their Web browser. There are three different kinds of Web sites:

Intranet

Extranet

Internet



5.0 Conclusion

In this unit you have followed the step by step guide in building a web presence site. The working of a web server was also illustrated. In the next unit you will looking at IBM patterns for e-Business .

6.0 Teacher Marked Assignment

1. List and explain the terminologies required for a web presence in e-Business.
2. Discuss fully the pre-site considerations.

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UNIT 4: Application Development Process: IBM Patterns for e-business.

Table of Content

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 Application development: Methodology
 - 3.2 Process
 - 3.3 Learning from the experience of others
 - 3.4 The four basic Business patterns
 - 3.5 The value of common terminology
 - 3.6 Building applications with proven experience
- 4.0 Summary
- 5.0 Conclusion
- 6.0 Tutor-Marked Assignments
- 7.0 References/Further Reading

1.0 Introduction

IBM has a Web site for the Patterns for e-business (*ibm.com/framework/patterns*), which is designed as a self-help tool to assist application development teams in using the Patterns. The Patterns Web site provides detailed, usable information to enhance each stage of application development.

2.0 Objectives

At the end of this unit you will be able to:
Understand the stages in application development
Discuss a set of well-worn steps followed by most projects

3.0 Main Content

3.1 Application development: Methodology

Regardless of the method used for application development, or of a project's size or complexity, most projects follow, either formally or informally, a set of well-worn steps:

- *Requirements gathering*
- *Analyzing the requirements*
- *Designing a solution*
- *Building or buying the software*
- *Testing.*

Many methodologies for developing applications exist; however, most of these are probably variations of three models:

- *The data-centric model, championed by James Martin in his writing on*

information engineering

- *The process-centric model, based on information analysis (data-flow diagramming)*
- *Various object-based models, which incorporate a combination of components from the first two models and the documenting/modeling tool UML(Unified Modeling Language).*

No matter what methodology drives an application development project, the common thread is process, and successful development will consistently use the major steps mentioned above.

Most projects, including those using one of the three methodologies described above, begin with requirements gathering, which entails determining what the application is meant to accomplish and which existing systems, data stores and other portions of the current infrastructure will be used. This is an ideal time to clearly establish functional boundaries to limit the scope of the application or project.

The tasks of application developers and product managers generally diverge at this point. The application developers analyze requirements, develop a design based on the given constraints (such as time, budget and existing systems) and produce specifications for each of the components or subsystems to be developed. Product managers concurrently develop test cases or acceptance criteria, the information the developers can use to determine if the system is functioning properly and whether it can accomplish all of the required tasks. With both the requirements and specifications in hand, developers can begin to build and unit-test the new application. Developers can analyze test results by comparing the design documents and specifications with the expected results developed by product managers. As developers complete major portions of the new application, integration testing can begin to determine if the various pieces work together and to ensure they work with existing applications, databases and infrastructure.

3.2 Process

Methodologies generally specify the steps to be taken and enumerate the work products to be produced. In general, they do not specify the actual process to be used to complete the specified tasks nor do they specify how a project is to be managed. A methodology may or may not include the specific process for each of the outputs to be produced. This is the process of using the methodology. In addition, successful projects will have other processes in place to handle tasks such as change management, progress reporting and tracking completion of assigned tasks. It is this aspect of a methodology, the details of how the work is to be done and how the required ancillary tasks are to be completed, that provides the additional detail necessary for success.

Simply put, experience is the best way to learn what works and what doesn't. Organizations should also employ internal mentorship and process reviews to help educate junior members and adjust procedures for continued improvement; learn from outside consultants, who can kick-start the process; and look outside the enterprise to learn from the experiences of others who have worked or are working to solve similar problems.

An organization that does not learn from its mistakes is bound to repeat them. Initiating a system in which developers, designers and analysts can learn from each other and others creates the foundation for a more effective application development process. Hiring outside consultants is another excellent way of gaining additional knowledge and experience to help guide the process.

However, many consultants use only proprietary methodologies and tools, and may or may not have the appropriate experience to lead a large development project. The most reputable organizations can provide invaluable assistance and experience based on their many successful engagements.

3.3 Learning from the experience of others

No matter the methodology, the entire application development process is fraught with challenges. Many companies embark on application development projects feeling as though their situation is wholly unique. This may be true in some ways, but wisdom comes with time and experience. When a consultant hears a question for the first time, his or her answer may not hold much value, but after the consultant hears the same question 25 times, audiences will marvel at the value of his or her wisdom. This is not to say that application development projects do not differ, but rather to emphasize how much they all have in common. IBM research shows that in almost all cases, only 20 percent of an application development project is unique; 80 percent of a project can be approached with well-proven software and techniques. Therefore, learning useful techniques that increase the chance for success can save significant time and resources.

IBM has taken learning from the experience of others to an entirely new level. The Patterns for e-business, created from the documentation and analysis of thousands of successful IBM application development projects, give businesses a set of proven, reusable architectures that can guide the design, development, implementation and extension of e-business applications. They match business challenges with Business and Integration patterns, use proven Application and Runtime patterns, populate the Runtime patterns with pretested Runtime Product Mappings, and establish best-practice guidelines for application design, development and management.

3.4 The four basic Business patterns

IBM has distilled its extensive application development knowledge into four primary Business patterns. These patterns, organized by application function, provide tangible solutions to the most frequently encountered business challenges by identifying common interactions among users, business and data. The four primary Business patterns are also detailed in a new book entitled *Patterns for e-business: A Strategy for Reuse* (available from the Patterns Web site).

The Patterns document proven designs and new directions in reusable e-business architectures:

- *Self-Service (also known as User-to-Business)*—applications where users are interacting with enterprise transactions and data
- *Collaboration (also known as User-to-User)*—applications where tools facilitate communication among users
- *Information Aggregation (also known as User-to-Data)*—applications where tools extract information from other data sources.
- *Extended Enterprise (also known as Business-to-Business)*—applications that integrate programmatic interactions among organizations.

Developers first match a business challenge to one of these high-level Business patterns. For the development of more in-depth systems, the Patterns have an elegance that allows highly flexible combinations. Some complex systems could use all four patterns or a combination of these patterns, plus one or more Integration patterns. IBM has also developed two common Integration patterns to better enable end use and to leverage the value of existing applications or systems:

- *Access Integration*—applications that enable access from multiple channels (devices) and integrate common services required to support a consistent user interface
- *Application Integration*—applications that call for the integration of Web-based solutions to core business systems and databases.

A common development scenario using the Patterns proceeds as follows:

A team is building an online sales system. Thus, they begin with the Self-Service pattern to set up the initial interface that enables potential customers to take orders. Now, the team needs the system to integrate with existing applications to process orders. They then, using the Collaboration pattern, add capabilities to provide direct customer service support and communication within the enterprise. If the team wanted to allow customers to access data that would allow them to check on the status of an order or make inquiries directly to other data stores and applications, they would use the Information Aggregation pattern, quite possibly coupled with the Application Integration pattern. The team also wants to support supply chain management, so they use the Extended Enterprise pattern. Lastly, because they want to allow access from a

variety of devices, the team turns to the Access Integration pattern to develop an end-to-end solution.

This high-level example illustrates the simplicity of the use of the Patterns and points to the relative ease in which companies can use them to scale applications to business demands, leveraging the ability to “start slow, grow fast.” The above example depicts only the skeleton of what the Patterns and Patterns Web site provide. Clearly, developers recognize that the devil is in the details. Once a development team selects the appropriate Business pattern, the Patterns offer an index into a set of lower-level patterns that provide the in-depth, nuts-and-bolts roadmaps for each step in the process. Each pattern breaks down into an increasingly complex series of patterns as shown in the Self-Service example below:

Stand-Alone Single-Channel
Directly Integrated Single-Channel
As-Is Host
Customized Presentation to Host
Router
Decomposition
Agent

The Patterns provide assistance in all phases of the development process, beginning with requirements gathering. As a development team puts together requirements, the Patterns Web site helps match those requirements to the appropriate pattern. As the team refines the requirements and determines which existing systems, data stores and infrastructure will be integrated into the system, they can use the Application pattern to develop how application components and data within a business solution interact. After choosing the Application pattern, the team can match Runtime patterns topology based on the existing environment and business needs. The Runtime pattern establishes the components needed to support the chosen Application pattern. Without advocating a particular vendor, this pattern defines the logical middleware nodes, their roles and the interfaces among these nodes in order to meet business requirements. The Runtime pattern documents what must be in place to complete the application but does not specify product brands.

Developers must now determine which products to use for the actual development. At this point, the Patterns provide a wide range of options and lend the developer significant assistance. Developers can access from the Patterns Web site Runtime Product Mappings that identify tested, optimal software implementations for each Runtime pattern. These include implementations on Microsoft® Windows NT® and IBM AIX®, AS/400® and OS/390® platforms.

The Patterns Web site details the products needed for each of the implementations. Developers should also consult the IBM WebSphere®

Developer Domain High Volume Web Sites Zone for additional guidance on planning, designing and building e-business solutions for Web sites supporting high-volume workloads and dynamic, volatile data (www7b.boulder.ibm.com/wsdd/zones/hvws).

Associated with each Runtime Product Mapping on the Web site are best practice application, design, development and management guidelines that have been gleaned in the process of developing these patterns. Developers can use them to access a wealth of information about other, similar development efforts.

Patterns Development Kit (PDK) is a step-by-step guide that enables developers to quickly create Web applications based on the Self-Service Business pattern—an application design that allows business users to interact with enterprise transactions and data.

The PDK provides a functional, best-practice implementation of the Stand-Alone Single-Channel Application pattern—and includes sample application code, installation scripts and wizards to help reduce development time and risk. This Application pattern provides a structure for applications that currently do not need to be integrated with other systems and that focus on only one delivery channel. While this Application pattern can be used to implement any one of the delivery channels, the focus is primarily on the Web channel. The IBM Patterns for e-business provide the following layers of reusable assets:

- Business Pattern
- Application Pattern
- Runtime Pattern
- Runtime Product Mappings
- Performance Considerations
- Technology Options
- Application Design Guidelines
- Application Development & Deployment Guidelines
- SM Guidelines
- Practical References
- Pattern Development Kit (including skeleton demo)

The Patterns development process is a live project, ever-evolving and being updated as new products are released and are used in the building of real applications. IBM has constructed the Patterns and the Patterns Web site to enable development teams to work through the development process using their preferred methodology or the methodology suggested by consultants engaged to assist in the project. IBM expects development teams to customize the Patterns for the specific objectives of the application in development.

3.5 The value of common terminology

An additional benefit of the IBM Patterns for e-business is that they establish a common terminology from the project's onset. Based on his

engagements leading and teaching others how to develop systems. It is critical to the process that all team members understand specifically what is meant by a term or phrase.

When the entire team knows exactly how to describe the completed system and its components, they can help educate management about the magnitude of the effort and the associated costs. Also, analysts, designers and developers all know exactly what is implied and required when describing and discussing the work, providing tremendous value by eliminating misunderstandings and facilitating better group communication and design efforts.

3.6 Building applications with proven experience

The Patterns are encompassed within the IBM Framework for e-business, which comprises standards, proven practices and a portfolio of products for developing, deploying and managing e-business applications. As a component of the Framework, the Patterns further enhance the development process by helping ensure that the application supports business objectives, significantly reducing cost and risk. The Patterns also help accommodate scaling business needs by allowing the initial development to form a strategic infrastructure that serves as the foundation for subsequent, more complex application development projects.

Additionally, the IBM Framework is based on widely accepted open standards and therefore does not preclude the use of software supplied by other vendors, nor is it tied to proprietary hardware. Because most enterprises have multiple operating systems with disparate devices and platforms, this vendor-neutral, scalable, open-standards approach is ideally suited for today's complex enterprise environments. Enterprises and development teams looking for an

effective strategic plan and platform that leverage the value of existing infrastructure while effectively planning for the future will find immense value in the IBM Patterns and the Framework for e-business.

The IBM Patterns and the Framework for e-business have translated invaluable experiences into practical tools for any application development project. Most development projects will fall into one of the following three categories:

- *Tactical projects—budget and time constraints dictate the use of as much vendor-supplied content as possible*
- *Major projects—the high level of complexity dictates the approach*
- *Pathfinder for strategic projects—tactical decisions about how Web applications will be built and incorporated in the future help determine the methodology, process and infrastructure for a current project.*

No matter what type of application project an enterprise is working on today, it is prudent to base the initial project on a proven reliable framework that thoroughly considers security and integrity and can

expand to handle both larger application requirements and higher customer volumes.

Several companies promise out-of-the-box solutions for a beginning, tactical project; however, often the solution puts the application into a box and fails to provide the best-practice processes for successful development. Development teams building their first Web-based application will find a veritable library of tools, code and best-practice assistance in the IBM Patterns and on the Patterns Web site.

This can help a team construct applications with user authentication and authorization, and links to back-end systems.

4.0 Summary

Application development, regardless of the complexity of the project or the methodology, will benefit greatly by employing a best-practice approach to the process. While some aspects of an application development project may be unique, all development process generally follow the same major steps. Through more than 20,000 successful e-business engagements, IBM has

learned that 80 percent of all application development is essentially the same, and in its mission to lead in the creation, development and manufacturing of the industry's most advanced information technologies, IBM has analyzed the best-practices to help enterprises develop applications successfully. This in-depth analysis has led to the IBM Patterns for e-business, a set of proven, reusable architectures that can guide the design, development, implementation and extension of e-business applications.

5.0 Conclusion

The IBM Patterns for e-business leverage the value of others' experiences, provide a common reference terminology and facilitate the application development process, saving valuable time and resources, reducing time to market, helping ensure success and generating a better return on investment. These Patterns match high-level business objectives to four essential patterns that provide more in-depth sets of topologies for a comprehensive approach. The four Business patterns can be used alone, combined with each other and the two Integration patterns, or modified to build simple tactical projects or the most advanced, integrated applications. The Patterns Web site, PDK and additional resources provide access to tutorials, basic code and intellectual capital, so a development team can confidently address any project.

6.0 Teacher Marked Assignment

1. Name the major steps in developing application

2. List the layers of reusable assets for e-Business provided by IBM.

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Unit 5: Electronic Infrastructure and EDI

Table of Content

1.0 Introduction

2.0 Objectives	
3.0 Main Content	
3.1 Definition of Electronic Data Interchange	
3.2  Standards	
3.3 Specifications	
3.4 Value Added Networks	
3.5 Internet/AS2	
3.6 EDI via the	
Internet (Web EDI)	3.7
EDI Outsourcing	
3.8 Interpreting data	
3.9 Advantages of using EDI over paper systems	
3.10 Barriers to implementation	
4.0 Summary	
5.0 Conclusion	
6.0 Tutor-Marked Assignments	
7.0 References/Further Reading	

1.0 Introduction

Electronic Data Interchange (EDI) refers to the structured transmission of data between organizations by electronic means. It is used to transfer electronic documents from one computer system to another from one trading partner to another trading partner. It is more than mere E-mail; for instance, organizations might replace bills of lading and even checks with appropriate EDI messages. It also refers specifically to a family of standards, including the X12 series. However, EDI also exhibits its pre-Internet roots, and the standards tend to focus on ASCII (American Standard Code for Information Interchange)-formatted single messages rather than the whole sequence of conditions and exchanges that make up an inter-organization business process.

2.0 Objectives

At the end of this unit you will be able to:

Define EDI

Understand major sets of EDI standards

Discuss the advantages of using EDI over paper systems

Identify the disadvantages of EDI

3.0 Main Content

3.1 Definition of Electronic Data Interchange

The National Institute of Standards and Technology in a 1996 publication defines Electronic Data Interchange as "the computer-to-computer interchange of strictly formatted messages that represent documents other than monetary instruments. EDI implies a sequence of

messages between two parties, either of whom may serve as originator or recipient. The formatted data representing the documents may be transmitted from originator to recipient via telecommunications or physically transported on electronic storage media." It goes on further to say that "In EDI, the usual processing of received messages is by computer only. Human intervention in the processing of a received message is typically intended only for error conditions, for quality review, and for special situations. For example, the transmission of binary or textual data is not EDI as defined here unless the data are treated as one or more data elements of an EDI message and are not normally intended for human interpretation as part of online data processing."

EDI can be formally defined as 'The transfer of structured data, by agreed message standards, from one computer system to another without human intervention'. Most other definitions used are variations on this theme. Even in this era of technologies such as XML web services, the Internet and the World Wide Web, EDI is still the data format used by the vast majority of electronic commerce transactions in the world.

3.2 Standards

The EDI standards were designed to be independent of communication and software technologies. EDI can be transmitted using any methodology agreed to by the sender and recipient. This includes a variety of technologies, including modem (asynchronous, and bisynchronous), FTP, Email, HTTP, AS1, AS2, etc. It is important to differentiate between the EDI documents and the methods for transmitting them. When they compared the bisynchronous protocol 2400 bit/s modems, CLEO devices, and value-added networks used to transmit EDI documents to transmitting via the Internet, some people equated the non-Internet technologies with EDI and predicted erroneously that EDI itself would be replaced along with the non-Internet technologies. These non-internet transmission methods are being replaced by Internet Protocols such as FTP, telnet, and E-mail, but the EDI documents themselves still remain.

EDI documents generally contain the same information that would normally be found in a paper document used for the same organizational function. For example an EDI 940 ship-from-warehouse order is used by a manufacturer to tell a warehouse to ship product to a retailer. It typically has a ship to address, bill to address, a list of product numbers (usually a UPC code) and quantities. It may have other information if the parties agree to include it. However, EDI is not confined to just business data related to trade but encompasses all fields such as medicine (e.g., patient records and laboratory results), transport (e.g., container and modal information), engineering and construction, etc. In some cases, EDI will be used to create a new business information flow (that was not a paper flow before). This is the case in the Advanced Shipment Notification (856) which was designed to inform the receiver

of a shipment, the goods to be received and how the goods are packaged.

There are four major sets of **EDI standards**:

The UN-recommended [UN/EDIFACT](#) is the only international standard and is predominant outside of North America.

The US standard ANSI ASC X12 (X12) is predominant in North America.

The TRADACOMS standard developed by the ANA (Article Numbering Association) is predominant in the UK retail industry.

The ODETTE standard used within the European automotive industry

All of these standards first appeared in the early to mid 1980s. The standards prescribe the formats, character sets, and data elements used in the exchange of business documents and forms. The complete X12 Document List includes all major business documents, including purchase orders (called "ORDERS" in UN/EDIFACT and an "850" in X12) and invoices (called "INVOIC" in UN/EDIFACT and an "810" in X12).

The EDI standard says which pieces of information are mandatory for a particular document, which pieces are optional and give the rules for the structure of the document. The standards are like building codes. Just as two kitchens can be built "to code" but look completely different, two EDI documents can follow the same standard and contain different sets of information. For example a food company may indicate a product's expiration date while a clothing manufacturer would choose to send color and size information.

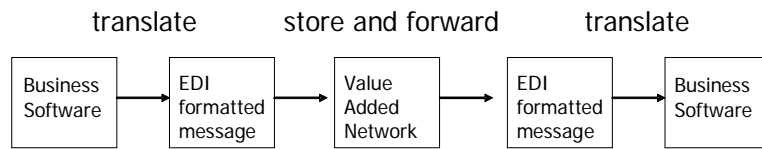
Standards are generally updated each year.

EDI - The Infrastructure for B2B



- A network for transmitting standard transactions
- A paperless TPS environment
- Routine documents; purchase order, billings, shipping manifests
- Documents translated into standard business language
- In use since the 1970s on private VANs. Save time, reduce errors in data entry, save money, consistent information flow
- Provide strategic advantages

Traditional EDI- How does it work?



- Documents such as purchase orders and shipping manifests are generated in a local software application.
- Software then translates documents into EDI global standard
- Network transports to other EDI user
- Software then translates EDI doc into receiver's local format

EDI - The Infrastructure for B2B (cont.)



Traditional EDI



- Great idea but weak in practice
 - <100,000 businesses in U.S. adopted it as of 1998 (out of millions)
 - Most participating had few partners on the system due to costs
 - Why the problems???...

Traditional EDI



- Factors limiting businesses to benefit from the traditional EDI
 - Significant initial investment is needed
 - Restructuring business processes is necessary to fit the EDI requirements and standards
 - Long start-up time is needed
 - Use of Private VANS is necessary
 - High EDI operating cost is needed
 - There are several EDI standards
 - The EDI system is complex to use with weak interface

3.3 Specifications

Organizations that send or receive documents between each other are referred to as "trading partners" in EDI terminology. The trading partners agree on the specific information to be transmitted and how it should be used. This is done in human readable specifications (also called Message Implementation Guidelines). While the standards are analogous to building codes, the specifications are analogous to blue prints. (The specification may also be called a mapping but the term mapping is typically reserved for specific machine readable instructions given to the translation software.) Larger trading "hubs" have existing

Message Implementation Guidelines which mirror their business processes for processing EDI and they are usually unwilling to modify their EDI business practices to meet the needs of their trading partners. Often in a large company these EDI guidelines will be written to be generic enough to be used by different branches or divisions and therefore will contain information not needed for a particular business document exchange. For other large companies, they may create separate EDI guidelines for each branch/division.

Transmission

Trading partners are free to use any method for the transmission of documents. In the past one of the more popular methods was the usage of a bisync modem to communicate through a value added network (VAN). Some organizations have used direct modem to modem connections and bulletin board systems (BBS), and recently there has been a move towards using some of the many Internet protocols for transmission, but most EDI is still transmitted using a VAN. In the healthcare industry, a VAN is referred to as a "clearinghouse".

3.4 Value Added Networks

In the most basic form, a VAN (value added network) acts as a regional post office. They receive transactions, examine the 'from' and the 'to' information, and route the transaction to the final recipient. VANs provide a number of additional services, e.g. retransmitting documents, providing third party audit information, acting as a gateway for different transmission methods, and handling telecommunications support. Because of these and other services VANs provide, businesses frequently use a VAN even when both trading partners are using Internet-based protocols. Healthcare clearinghouses perform many of the same functions as a VAN, but have additional legal restrictions that govern protected healthcare information.

VANs also provide an advantage with certificate replacement in AS2 transmissions. Because each node in a traditionally business-related AS2 transmission usually involves a security certificate, routing a large number of partners through a VAN can make certificate replacement much easier.

3.5 Internet/AS2

Until recently, the Internet transmission was handled by nonstandard methods between trading partners usually involving FTP or email attachments. There are also standards for embedding EDI documents into XML. Many organizations are migrating to this protocol to reduce costs. For example, Wal-Mart is now requiring its trading partners to switch to the AS2 protocol (Wal-Mart EDI Requirement).

AS2 (Applicability Statement 2) is the draft specification standard by which vendor applications communicate EDI or other business-to-business data (such as XML) over the Internet using HTTP, a standard used by the World Wide Web. AS2 provides security for the transport

payload through digital signatures and data encryption, and ensures reliable, non-repudiable delivery through the use of receipts.

3.6 EDI via the Internet (Web EDI)

The Internet, as with VAN providers, uses its own communications protocols to ensure that EDI documents are transmitted securely. The most popular protocols are File Transfer Protocol Secure (FTPS), Hyper Text Transport Protocol Secure (HTTPS), and AS2.

The Internet has provided a means for any company, no matter how small or where they are located in the world, to become part of a major supply chain initiative hosted by a global retailer or manufacturing company. Many companies around the world have shifted production of labour intensive parts to low-cost, emerging regions such as China and Eastern Europe. Web-based EDI, or webEDI, allows a company to interact with its suppliers in these regions without the worrying of implementing a complex EDI infrastructure.

In its simplest form, webEDI enables small to medium-sized businesses to receive, turn around, create and manage electronic documents using just a web browser. This service seamlessly transforms your data into EDI format and transmits it to your trading partner. Simple pre-populated forms enable businesses to communicate and comply with their trading partners' requirements using built-in business rules. Using a friendly web-based interface, EDI transactions can be received, edited and sent as easily as an email. You will also be able to receive EDI documents and send EDI invoices and shipping documents with no software to install. All you require is an Internet connection. WebEDI has the added advantages that it is accessible anywhere in the world and you do not need a dedicated IT person to manage any software installation.

Even though VANs offer a very secure and reliable service to companies wishing to trade electronically, the Internet is making EDI more available to all. This is especially important in the emerging markets where IT awareness and infrastructure are very limited. WebEDI is traditionally based around the "hub and spoke" model, with major trading partners or Application Service Providers (ASPs) being the hubs and smaller partners being the spokes.

Hubs or ASPs implement EDI using email or virtual mailboxes

Trading partners can send EDI messages directly to a web-enabled EDI messaging site, via the hub. EDI messages are simply sent using a web browser

Systems that are currently being developed will enable EDI messages to be displayed in a web browser and directed via open standard XML, directly into the user's accounts system

WebEDI-based users can interact with VANs without incurring the costs of setting up a dedicated VAN connection

3.7 EDI Outsourcing

Operating an EDI program is becoming increasingly complex as companies face a wider range of requirements from trading partners. Many companies have chosen to outsource their EDI needs to an integration service provider that offers the people, processes, and technology to operate a robust EDI program.

People - Skilled people with both technical and business expertise who can support and deliver a B2B program that meets current and future business objectives

Processes - Best-practice processes for implementing or extending the use of B2B e-commerce in an organization, managing a B2B program on an ongoing basis, and quickly and easily bringing new trading partners onto a B2B network

Technology - The comprehensive infrastructure needed to exchange EDI transactions with partners, translate business documents between any of the many EDI e-commerce standards now in use, and provide reporting and visibility into B2B processes and networks

3.8 *Interpreting data*

Often missing from the EDI specifications (referred to as EDI Implementation Guidelines) are real world descriptions of how the information should be interpreted by the business receiving it. For example, suppose candy is packaged in a large box that contains 5 display boxes and each display box contains 24 boxes of candy packaged for the consumer. If an EDI document says to ship 10 boxes of candy it may not be clear whether to ship 10 consumer packaged boxes, 240 consumer packaged boxes or 1200 consumer packaged boxes. It is not enough for two parties to agree to use a particular qualifier indicating case, pack, box or each; they must also agree on what that particular qualifier means.

EDI translation software provides the interface between internal systems and the EDI format sent/received. For an "inbound" document the EDI solution will receive the file (either via a Value Added Network or directly using protocols such as FTP or AS2), take the received EDI file (commonly referred to as a "mailbag"), validate that the trading partner who is sending the file is a valid trading partner, that the structure of the file meets the EDI standards and that the individual fields of information conforms to the agreed upon standards. Typically the translator will either create a file of either fixed length, variable length or XML tagged format or "print" the received EDI document (for non-integrated EDI environments). The next step is to convert/transform the file that the translator creates into a format that can be imported into a company's back-end business systems or ERP. This can be accomplished by using a custom program, an integrated proprietary "mapper" or to use an integrated standards based graphical "mapper" using a standard data transformation language such as [XSLT](#). The final

step is to import the transformed file (or database) into the company's back-end [enterpriseresourceplanning](#) (ERP).

For an "outbound" document the process for integrated EDI is to export a file (or read a database) from a company's back-end ERP, transform the file to the appropriate format for the translator. The translation software will then "validate" the EDI file sent to ensure that it meets the standard agreed upon by the trading partners, convert the file into "EDI" format (adding in the appropriate identifiers and control structures) and send the file to the trading partner (using the appropriate communications protocol).

Another critical component of any EDI translation software is a complete "audit" of all the steps to move business documents between trading partners. The audit ensures that any transaction (which in reality is a business document) can be tracked to ensure that they are not lost. In case of a retailer sending a Purchase Order to a supplier, if the Purchase Order is "lost" anywhere in the business process, the effect is devastating to both businesses. To the supplier, they do not fulfill the order as they have not received it thereby losing business and damaging the business relationship with their retail client. For the retailer, they have a stock outage and the effect is lost sales, reduced customer service and ultimately lower profits.

In EDI terminology "inbound" and "outbound" refer to the direction of transmission of an EDI document in relation to a particular system, not the direction of merchandise, money or other things represented by the document. For example, an EDI document that tells a warehouse to perform an outbound shipment is an inbound document in relation to the warehouse computer system. It is an outbound document in relation to the manufacturer or dealer that transmitted the document.

3.9 Advantages of using EDI over paper systems

EDI and other similar technologies save a company money by providing an alternative to, or replacing information flows that require a great deal of human interaction and materials such as paper documents, meetings, faxes, etc. Even when paper documents are maintained in parallel with EDI exchange, e.g. printed shipping manifests, electronic exchange and the use of data from that exchange reduces the handling costs of sorting, distributing, organizing, and searching paper documents. EDI and similar technologies allow a company to take advantage of the benefits of storing and manipulating data electronically without the cost of manual entry. Another advantage of EDI is reduced errors, such as shipping and billing errors, because EDI eliminates the need to rekey documents on the destination side. One very important advantage of EDI over paper documents is the speed in which the trading partner receives and incorporates the information into their system thus greatly reducing cycle times. For this reason, EDI can be an important component of just-in-time production systems.

3.10 Barriers to implementation

There are a few barriers to adopting electronic data interchange. One of the most significant barriers is the accompanying business process change. Existing business processes built around slow paper handling may not be suited for EDI and would require changes to accommodate automated processing of business documents. For example, a business may receive the bulk of their goods by 1 or 2 day shipping and all of their invoices by mail. The existing process may therefore assume that goods are typically received before the invoice. With EDI, the invoice will typically be sent when the goods ship and will therefore require a process that handles large numbers of invoices whose corresponding goods have not yet been received.

Another significant barrier is the cost in time and money in the initial set-up. The preliminary expenses and time that arise from the implementation, customization and training can be costly and therefore may discourage some businesses. The key is to determine what method of integration is right for your company which will determine the cost of implementation. For a business that only receives one P.O. per year from a client, fully integrated EDI may not make economic sense. In this case, businesses may implement inexpensive "rip and read" solutions or use outsourced EDI solutions provided by EDI "Service Bureaus". For other businesses, the implementation of an integrated EDI solution may be necessary as increases in trading volumes brought on by EDI force them to re-implement their order processing business processes.

The key hindrance to a successful implementation of EDI is the perception many businesses have of the nature of EDI. Many view EDI from the technical perspective that EDI is a data format; it would be more accurate to take the business view that EDI is a system for exchanging business documents with external entities, and integrating the data from those documents into the company's internal systems.

Successful implementations of EDI take into account the effect externally generated information will have on their internal systems and validate the business information received. For example, allowing a supplier to update a retailer's Accounts Payables system without appropriate checks and balances would be a recipe for disaster.

Businesses new to the implementation of EDI should take pains to avoid such pitfalls.

Increased efficiency and cost savings drive the adoption of EDI for most trading partners. But even if a company would not choose to use EDI on their own, pressures from larger trading partners (called hubs) often force smaller trading partners to use EDI. An example of this is Wal-Mart's insistence on using EDI with all of its trading partners; any partner not willing to use EDI with Wal-Mart will not be able to do business with the company.

While the benefits of EDI are numerous and only increase with increased volume, the drawbacks, though not directly related to EDI itself, include managerial problems in the support, maintenance and implementation of EDI transactions.

1. Though an EDI standard exists for health care transactions, the standard allows for variation between implementation, which gives way to the existence of Companion Guides, detailing each company's variation.
2. Each entity may have a different method of delivery, ranging from dial-up BBS systems; mailing hard media such as a CD-ROM or [tape backup](#); or [FTP](#). Some entities may elect not to support different methods of delivery depending on a trading partner's expected volume.
3. Due to varying implementation on nearly all points of EDI including contact, registration, submission and testing of transactions between different entities in US health care, the existence of EDI clearinghouses has sprung up. An EDI clearinghouse is one entity agreeing to act as a middle-man between multiple entities and their end-clients, such as between medical providers and insurance companies they accept coverage from. They may act as a value-added network and attempt to conform their different supported entities to one submission standard. One such example is [Emdeon](#). An EDI clearinghouse will not cover all health care entities, though they may cover a large portion, and they may not cover all Health Insurance Portability and Accountability Act ([HIPAA](#))-mandated transactions for all of their supported entities.
4. Because of the above points, one single computer application cannot handle all health care entities. Though this may not be necessary, it can lead to an obvious management headache as a company attempts to register itself with various EDI partners.

This example is an extension of the lack of strict standards across implementations, transactions and methods.

4.0 Summary

Generally speaking, EDI is considered to be a technical representation of a business conversation between two entities, either internal or external. Note, there is a perception that "EDI" constitutes the entire electronic data interchange paradigm, including the transmission, message flow, document format, and software used to interpret the documents. EDI is considered to describe the rigorously standardized format of electronic documents.

5.0 Conclusion

This all comes at a massive cost in time and management as a company may attempt to support a broad range of transactions with a broad range of entities.

6.0 Teacher Marked Assignment

1a. What is the meaning of EDI?

b. What are advantages of using EDI over paper systems?

7.0 References/Further Reading

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UNIT 6: Marketing Strategies for e-Business

Table of Content

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Main Content
 - 3.1 e-Marketing Plan
 - 3.2 What is e-metrics?

- 3.3 What is e-marketing Planning
- 3.4 e-Business Model
 - 3.4.1 Merchant Model
 - 3.4.2 Auction Model
 - 3.4.3 Manufacturer Model
 - 3.4.4 Affiliate Model
 - 3.4.5 Advertising Model
 - 3.4.6 Infomediary Model
 - 3.4.7 Subscription Model
 - 3.4.8 Brokerage Model
 - 3.4.9 Virtual Communities Model
 - 3.4.10 Logistics Mode
- 3.5 e-Business Models and e-marketing Planning
- 3.6 Preparing the e-marketing Plan
- 3.7 Choosing an Appropriate Planning Time Horizon
- 3.8 Preparing Revenue Forecasts
- 3.9 What e-Budgets to Include?
- 3.10 Towards Achieving Accountability
- 3.11 Sampling of e-metrics
- 3.12 Benchmarking
- 3.13 Acquisition Costs
- 3.14 Combining Data to Create New Metrics
- 3.15 Marketing
 - 3.15.1 Product or service
 - 3.15.2 Price
 - 3.15.3 Place or distribution
 - 3.15.4 Promotion
- 3.16 The Basics of Web-based Marketing
 - 3.16.1 Make them aware of your site.
 - 3.16.2 Get them to your site
 - 3.16.3 Get them engaged immediately
 - 3.16.4 Provide a structure and navigation system that leads them in the most productive directions and avoids dead ends
 - 3.16.5 Keep them interested
 - 3.16.6 Close the sale
 - 3.16.7 Leave them wanting to come back for more
- 3.17 Mass Customization
- 3.18 Viral Marketing
- 3.19 Community Based Marketing
- 3.20 Guerrilla Marketing
- 3.21 Desperation marketing
- 3.22 Branding
- 3.23 Timing of payments and the “pain of paying”
- 3.24 Mental accounting and the pseudo sunk cost effect
- 3.25 Self-control issues
- 3.26 Categorization of payments

3.27 Model

3.27.1 Modeling pain of paying and sunk-cost effect from cross condition

quantities

3.27.2 Heterogeneity in valuations and distribution of quantities consumed within each condition

3.27.3 Evaluating desire for self-control through stated preferences

3.28 Experimental validation

3.28.1 Interactive Content Purchasing Experiment

3.28.2.1 Expenditures

3.28.2.2 Quantity

3.28.2.3 Within-method analysis

3.28.2.4 Self reported perceptions and preferences over methods

3.28.2.5 Self reported data vs. actual behavior

4.0 Summary

5.0 Conclusion

6.0 Tutor-Marked Assignments

7.0 References/Further Reading

1.0 Introduction

The Internet offers companies the opportunity to market goods and services to more customers than ever before. Reaching these customers and developing their loyalty by delivering quality, convenience, price competitiveness, and the right products and services, begins with a solid e-marketing plan. Whether you are making the move to e-marketing or are already an e-marketer, you will need to develop a plan, implement the plan, be accountable for actual results, and utilize metrics that help propel you towards e-business success. The timeless exhortation of marketing is “Know thy customer,” and there has never before been a tool for getting to know the customer, like the internet. Getting to know the customer is a pre-requisite for classic business strategies like targeted marketing, differential pricing, and versioning. While in the past targeted marketing focused on characteristics of groups, today it can focus on the characteristics of individuals. You must have noticed how web advertisements seem to be linked to your actions on the screen. Customers who display bargain-hunting tendencies tend to get advertisements that tempt them through bargains. Banner ads seem to be designed just for you! Users of Amazon.com get recommendations of new books based upon their past reading patterns. Banner ads on the search sites are often keyed to where you have visited in the past.

Gone are the days when venture capital flowed abundantly to dot-coms with interesting business models. The great dot-com shakeout has put e-Businesses under pressure to perform. Executives in all types of e-businesses are seeking useful metrics to gain critical insights into

business performance. Amazingly, although many e-businesses collect voluminous data from their servers, many e businesses do not know how to transform that data into useful metrics. Ignoring e-metrics is like operating in the dark and without metrics, accountability is impossible.

2.0 Objectives

At the end of this unit you will be able to:

Define e-Marketing planning, e-metrics

Discuss e-business models

Understand and prepare e-business models

List and discuss the requisite basic actions for an e-Commerce site.

Discuss mass customization

Understand viral marketing, community based marketing, guerrilla marketing, desperation marketing

Understand the psychological phenomena and their effects on payment methods

Discuss mental accounting and the pseudo sunk cost effect

Evaluate desire for self-control through stated preferences

3.1 e-Marketing Plan

Today your e-marketing plan must do more than tell a story of innovative technology. You must do more than develop information technologies geared to attracting online visitors and developing market share.

Market share is still important but so too is profit and accountability; both demanded by enlightened shareholders. Business value enhancement and return on investment has never been of greater concern in the e-business arena. Effective marketing programs and strategies that quantify goals and provide measurable impact are the means to success in the new economy.

The Internet seems to have everything in abundance – except accountability and profitability. Despite the great opportunities provided by e-Business markets, the e-marketer must give great effort to mine “net” profits and must go to great lengths to be accountable for every dollar spent. That effort begins with solid e-marketing plans and good accountability systems that rely on e-metrics.

3.2 What is e-metrics?

The term e-metrics refers to measurements and ratios that help marketers forecast, track, discover trends, monitor, and control the following:

e-customer behavior, cost, value, and acquisition.

Web site traffic, performance, revenue and other significant results

□ e-promotional and advertising campaign performance including e-mail marketing, traditional direct mail, and internet advertising

Web site success

Some large companies and also smaller e-marketers are making money online. There are lessons to be learned by these firms. What do they have in common?

Solid e-marketing plans that they can monitor and learn from.

□ Accountability through metrics that helps them to forecast, control, plan, test, learn, and re-test.

3.3 What is e-marketing Planning

Let's begin by defining a marketing plan and then move onto defining it's "new economy cousin"; the e-marketing plan. A marketing plan is a written document that details the current marketing situation, threats and opportunities, marketing objectives, and the strategies for achieving those objectives. A marketing plan can be written for each product, service, brand, or for the company as a whole. An e-marketing plan is a bit more focused than the traditional marketing plan. Although it often includes some of the same topics as a traditional marketing plan, it is more centered on the marketing opportunities, threats, objectives and strategies of the Internet.

The e-marketing plan defines your business model, builds commitment from all people who will be involved in its implementation, and establishes performance criteria and benchmarks for success.

Development of your e-marketing plan begins with a complete review of your e-business model.

Self Assessment Exercise

What is a business model? How can you define your e-business model and how does it influence your e-marketing plan.

Check your answer with mine below.

e-marketing Plan

The e-marketing plan gives you a road map or a blue print to e-business success. The prerequisite to writing a good e-marketing plan is a complete understanding of your e-business model. As you prepare your e-marketing plan, you may go through a learning process; you will analyze your e-business model in detail in an attempt to learn what drives your online sales and revenue streams.

3.4 e-Business Model

What is your e-business model? Can you define it in a paragraph or two? A business model describes your architecture for product, service, and information delivery and a description of sources of revenues (revenue streams). A business model identifies the value chain elements

of the business such as inbound logistics, operations or production, outbound logistics, marketing, service; and support activities.

You must define your business model by writing your own description of it. From that description, can you identify each significant revenue stream and each potential revenue stream? Can you identify expenses that will be incurred in generating those revenue streams? Do you see the critical things that must be measured (metrics) and tracked to help assure success? Can you see how your business model will use e-marketing to price, promote, sell, and distribute your product?

As you develop your e-marketing plan you must think about how your e-marketing effort “fits” your business model. At a minimum, your business model will influence the way you forecast sales and predict e-marketing expenses. However, beyond basic sales forecasting and budgeting, there are aspects of your e-marketing plan that address the specific way you will do business, generate revenue, and consume resources. Your e-marketing plan should discuss how you will use information technologies to manage the marketing mix product, price, place, and promotion, how you plan to optimize your content, and how you will allocate resources to attract new customers, create loyalty with existing ones, and create revenue streams.

Be sure you define your business model before you write your plan. Can you identify your e-business model in the descriptive sections that follow?

3.4.1 Merchant Model

The Merchant model is web marketing of wholesalers or retailers of goods and services. The goods and services might be unique to the web or an extension of a traditional “brick and mortar store front.

This model includes catalogers who have decided to complement their catalog operation with a web site or have decided to migrate completely to an online model. Benefits of this model include increased demand for goods and services via an entry into the global market, potential lower costs of promotion and sales, 24/7 ordering and customer service, and one-to-one custom marketing.

3.4.2 Auction Model

The auction model web implementation of bidding mechanisms through multimedia presentation of goods and services. Revenue streams are derived from licensing of the auction technology platform, transaction fees, and advertising.

3.4.3 Manufacturer Model

The manufacturer model uses the web to compress the distribution channel so that rather than use intermediaries to get your products and services to market, you go direct to the customer via the web.

For example, Dell Computer Corporation, maker of personal computer systems, uses this model by selling direct to consumers via their web site. About 50 percent of Dell's sales are Web-enabled (www.dell.com).

3.4.4 Affiliate Model

The affiliate model is a “pay for performance model”. Revenue streams are created when customers click through links or banner ads to purchase goods and services. Affiliate marketing is when one web site (the affiliate) promotes another web site's products or services (the merchant) in exchange for a commission. The affiliate earns a commission (i.e., 10% of the purchase) while the merchant derives a sale from an affiliate (partner web site). Through affiliate marketing, merchants can place their advertising banners and links on content sites worldwide and only pay a commission when those links generate a sale or qualified lead. Affiliated content sites can convert their online content into e-Commerce by populating it with these revenue-generating links.

3.4.5 Advertising Model

Like a traditional broadcaster or news media business models, the web advertising model provides content and services (i.e., email, chat, forums, auctions, etc) supported by banner ads and other forms of online advertising (perhaps email newsletter ads). Some advertising models are called portals (like AOL, Yahoo, and AltaVista) while others are called “Free Models”; like Blue Mountain Arts (www.bluemountain.com) where giveaways (like free electronic greeting cards and invitations) help create high volume.

3.4.6 Infomediary Model

This is a web model whereby the infomediary collects data from users and sells the information to other businesses. Traffic is driven to the infomediary's site by free offers (such as free Internet access or free hardware).

3.4.7 Subscription Model

In a subscription model, users pay for access to the site and the high value content that they view.

Some models offer free content with premium content available only to paid subscribers. Advertising revenues may also be part of the revenue stream.

3.4.8 Brokerage Model

A brokerage model is a web market maker that bring buyers and sellers together. The model ranges from virtual malls to online stock and bond traders and can include business-to-business (B2B), business-to-consumer (B2C), and consumer-to-consumer (C2C). Transaction fees or commissions generate the revenue under this model.

3.4.9 Virtual Communities Model

The virtual communities' model facilitates the online interaction of a community of users (members, customers, partners, students, etc). The model makes it easy for the community members to add their own content to the online community web site. Revenue streams are generated from membership fees and advertising revenue.

3.4.10 Logistics Model

A business that utilizes the Internet to help other businesses manage logistical functions such as electronic payments, ordering systems, and shipping services in operating under the logistics model. Fees are the basis for the revenue scheme.

3.5 e-Business Models and e-marketing Planning

What is the relationship between e-business models and e-marketing?

Central to all the models

identified in the previous section are three issues:

For these models to work, e-marketing planning is critical.

These models generate tremendous amounts of information; strategic information from web site activity, that can be used to better meet the needs of e-customers and to sell more product.

Metrics are needed to provide accountability and to analyze the information (see number two above) for strategic advantage.

3.6 Preparing the e-marketing Plan

Writing an e-marketing plan is not an easy task. There are obstacles. However, the intent of this unit is not to provide a guide for developing an e-marketing plan rather, we will identify some of the hurdles that must be overcome to develop a good plan.

What are some of the obstacles of writing a good e-marketing plan? For starters:

Procrastination is a problem; busy executives put off writing a plan. Yet, with businesses moving at such a rapid pace (Internet time), there is a big opportunity cost to e-procrastination. Putting off the development of an e-marketing plan can cost you market opportunities and profits.

Time: The process of developing an e-marketing plan is time consuming. Think about ways to streamline the process. Examples and templates could be the answer. Seeing an example plan to emulate and following a proven template can save you a great deal of time
writer's block and the labor-intensive circuitous nature of writing are also major barriers.

Challenge of identifying the right analysis,

the tricky nature of developing revenue stream forecasts, and

question of which expense budgets to develop.

Be prepared for these obstacles. Writer's block, the writing process, and e-marketing analyses, are discussed in the sections that follow.

□ Overcoming Writer's Block: Templates Help

Any time you need to prepare a multi-page report, like an e-marketing plan, writer's block can be a problem. One way to overcome writer's block and to help assure coherent organization in a lengthy document, like an e-marketing plan, is to develop an outline. However, the development of an initial outline is also time-consuming. A good

writing template provides not only a useful outline but also text that prompts you for comments and observations and triggers your creative writing thought process. Writing an e-marketing plan is partly an exercise in answering a series of critical questions. Unfortunately, not everyone knows what critical questions need to be answered.

Other advantages to a well designed template is that it should save you time in setting up a table of contents and in providing consistent and professional report formatting. Your e-marketing plan content is critical but almost as critical is the look and “feel” of your reports. Management may interpret poor looking e-marketing plans as less credible. Be sure to polish your e-marketing plan document.

□ **Getting Through the Circular Process of Writing**

Before you prepare the final draft of your e-marketing plan, you will need to go in “circles” to make sure that your document is clear and compelling. The process of writing a plan is a circular one in that you write, edit, revise and re-write to the point where you may believe you’ll never finish. Other than spelling and grammar check, no software can really help you through this circular process.

You need recognize up front that developing a plan is work and that there are few short cuts to writing a plan that is clear, concise, and coherent. You must put in the time and effort to produce a polished and effective plan. It will take many hours of thinking, analyzing, researching, writing, revising, editing re-writing till you get it right. One helpful strategy is to review sample plans that have been developed into final drafts, task of writing, editing, revising, and re-writing.

Thinking, analyzing, researching, writing, revising, editing, and re-writing till you get it right is the way

good plan preparation works. In the end, all that work should yield two important results: a polished,

professional looking plan and a refined e-business model.

□ **Writing for Clarity, Conciseness, and Coherence.**

One of the reasons you need to write, revise, edit, and re-write is that you want your plan to be clear, concise, and coherent. . Experts who review business and marketing plans will tell you that plans are not always clear and to the point. Clarity begins with good organization and good organization can be achieved by using an outline or template. Conciseness will occur if you get to the point by making every word count.

Delete unnecessary words and write simple relatively short sentences. Long sentences and complex wording can cloud meaning.

Coherence means that there is unity in your plan. Unity begins with plan sections and subsections that address one central topic and extends to the central idea of each paragraph. Here are some suggestions that help promote coherence:

Develop topic sections and subsections for your e-marketing plan. Each sections and subsection should have its own heading.

Make sure each paragraph has a topic sentence and that the other sentences in the paragraph support that sentence.

Delete regressions and irrelevant sentences to accomplish coherence.

Think about using or reviewing a template. To some extent, coherence can be achieved by following a template.

Transition sentences should “move” the reader from one subsection to another.

Providing the Right Analysis

Your e-marketing plan must show analysis. The use of tables, worksheets, and charts your plan and are critical to a good e-marketing plan. Analysis indicates potential, brings your written plans to life, and provides solid metrics of accountability as you implement the plan. Analysis not only shows that you have thought things through but it also helps refine your conception of your e-business model.

Think about what analyses you can develop and include in your plan. In addition to streamlining the process of analysis identification, spreadsheet based templates offer these advantages:

Professional style and formatting.

Easy chart development because of preset charting options.

Easy modification to meet custom needs.

Types of e-marketing analysis to incorporate in a plan would include:

- Sales (or revenue) forecasts
- Budgets for e-marketing efforts
- Traditional and web based advertising analysis
- Variety of competitive analyses, including score cards
- Analysis of sales and sales force performance
- Profit performance including contribution margin and product profitability
- Pricing analysis

You may find that not all the worksheets in a product like e-marketing Suite are relevant to your plan, but you will find a critical mass of analyses, forecasts, and other worksheets that will add great value to your planning process.

Measurements of activities, costs, revenues, and profitability that can help you monitor and control the effectiveness of your e-marketing plan.

They belong in an e-marketing plan because of accountability. If you are to be accountable for e-marketing results, you need to show what analyses and tools you will use to keep a pulse on operations. e-metrics should be developed in the following areas:

Customer activities

Promotional activities: such as e-mail, direct mail, and banners.

Web site activities

Again, you may find that not all the worksheets in a product like e-metrics are relevant to your e-marketing planning and control activities. However, you should find a critical mass of analyses, forecasts, and other worksheets that will add great value to your planning process and perhaps generate new ideas for additional tools.

3.7 Choosing an Appropriate Planning Time Horizon

How far out should you plan? There is debate as to what planning time horizon is appropriate for fast moving e-businesses. Should your plans be for a year, two years, or five years? What about fast paced Internet time? Is a three-year plan too long? In Internet time, three years is like 21 years in the old economy (like dog years – 7 years for every one-year). Think about where you think your business will be in six months, one year, and three years? Perhaps a three-year plan is fine as long as it uses quarter-to-quarter forecasts and is updated frequently. Embellix Software's e-marketing Suite uses a three-year planning horizon, with month-to-month forecasts for year one and quarter-to-quarter forecasts for year two and three.

Regardless of the planning time horizon that you choose to use for your e-marketing plan, the starting point for your planning is the revenue forecast. Think about your business model and the types of revenue streams you will derive from your e-business activities.

3.8 Preparing Revenue Forecasts

How will you show your forecasted revenue streams? Begin by analyzing your business model (see the previous section: *e-marketing Plan and Your e-Business Model*). You may have your own "home grown" methods of forecasting revenue. On the other hand, you may want to use one or more of the revenue forecasting methods available in software packages. u

You can Forecast Features by:

- Advertising
- Revenue
- Affiliate Revenue
- E-Mail
- Sales Web
- Traffic
- Channels
- Growth Rates
- Market Share
- Unit Sales

3.9 What e-Budgets to Include?

Revenue stream projections are only half the picture. You also need to forecast the resources needed to carry out your revenue plans. Therefore, expense budgets need to be part of your e-marketing plan.

In fact, budgeting is a major concern for companies attempting to implement e-marketing strategies.

Implementing an e-marketing plan can be relatively costly. One survey notes that the resources needed to implement e-marketing are often more than expected. What budgets should be part of your e-marketing plan? Here are some suggestions:

□ e-marketing Budget projecting e-marketing expenses for advertising, mail Campaigns, promotional activities, collateral, and other marketing expenses. The budget should be organized in two main sections: e-marketing expense budget by month for year 1 and three years by quarter.

e-marketing Operating Budget projecting an operations budget for your e-marketing function including forecasted monthly personnel costs, operational expenses, travel and entertainment for e-marketing personnel, and allocated costs of e-marketing. The budget should be organized in two sections: e-marketing operating expense budget by month for year 1 and three years by quarter.

□ CM and Break-even Analysis projecting your contribution margin and break-even point based on projected sales, fixed costs, and variable costs. This forecast should “tie” into your revenue forecasts and reveal your e-marketing profitability goals.

Traffic Forecasts projecting monthly web site traffic and charting activity. At a minimum it should predict the following web metrics: hits (total hits, average per day, home site), page views (impressions, average per day, document views), visitor sessions (total, average per day, international vs. domestic, average length) and visitors (unique visitors, visitors who visit once, visitors who visit more than once).

With an excellent set of forecasts and budgets in place, your e-marketing plan can move you closer to accountability.

3.10 Towards Achieving Accountability

Accountability in e-marketing is critical today as management and investors are looking to hold the marketing staff responsible for e-marketing results. To demonstrate accountability, you must find ways of using metrics to show that you are meeting or exceeding e-marketing goals of revenue growth, cost savings, response rates, return on investment. E-metrics can also help to justify the funding you receive and to get your e-marketing team more resources in the future.

Accountability is about finding the answers to essential e-market planning questions. After you have developed an e-marketing plan how will you follow-up on the effectiveness of the plan? Which goals have been accomplished and which have not? Which creative approaches are

working and which are not? Which campaigns are driving customers to

your web sites and which are not? Which campaigns deserve more resources? Should you shift funds from less productive campaigns to more profitable ones?

There is a tremendous amount of information produced by customer activity on web sites. If this information is used effectively, it can help e-marketers improve business performance. If you are running a web site, you are probably periodically reviewing a server log of user activity. What do you do with that information? Do you simply review the reports? Alternatively, have you developed a system of accountability and e-metrics that helps assure that your e-marketing efforts are adding value to your company? If you have such a system, it should give you answers to a number of critical questions.

Here are some of those questions. See how many of them you can answer for your e-marketing venture.

Do you know which e-promotions are profitable ones? What useful measurements of e-business activity do you track? Do any of these measurements help you forecast future demand? Do you track from month-to-month or from campaign-to-campaign any of the following metrics?

Customer acquisition costs?

Conversion and retention rates?

Duration, reach, and stickiness metrics of your web site? ROIs for e-mail and other e-marketing campaigns?

The next section of this unit presents a sampling of e-metrics that you can use to introduce some accountability to your e-marketing plans. That section is not intended to be an exhaustive list of e-metrics rather, it should serve as an introduction to e-metrics.

3.11 Sampling of e-Metrics

The term e-metrics is a relatively new one. E-metrics are measurements of activities, costs, revenues, and profitability that can help you monitor and control the effectiveness of your e-marketing plan.

Operational metrics is not a new concept. Business people have been measuring performance for many years. Financial managers calculate and monitor effectiveness, efficiency, liquidity, leverage, and profitability through ratios and they use these ratios to monitor and control operations. In marketing, measurements such as selling expense ratio, days sales outstanding, inventory turnover, gross margin percentage, cost of goods sold percentage, mark-ups and mark-downs are used to gauge certain key performance measures.

The advent of e-business has made it necessary for marketers to add new metrics to their bag of tricks. These metrics are part of an evolving body of knowledge that will continue to be defined and refined for years to come. Many new e-metrics are being devised.

Sample of e-metrics includes acquisition and conversion metrics, measures of frequency, duration, reach, and stickiness, and e-mail address churn rates.

Conversion Metrics

Conversion describes the process whereby an acquired prospect becomes a formal “customer”. Converting a potential customer to a buyer is a critical part of the selling process in all types of businesses. Conversion happens when the sale is closed; when the customer in effect says yes to the offer. Although it is a critical part of the selling process, conversion is rarely closely monitored in traditional businesses. For example, brick & mortar business models, conversion costs and rates are rarely calculated for reasons of economic feasibility and the cost/benefit trade-off of generating such information. Take the example of a physical retailer; few retailers track the number of people who actually buy something once they have entered the store (conversion ratio). That type of conversion is difficult to track and in most cases not economically feasible. It’s the classic cost/benefit tradeoff; the cost of tracking such data far exceeds the benefits derived from such data. In the virtual world of e-business, conversion tracking is economically feasible since it can be done relatively cheaply. Customer web site activity is gathered relatively inexpensively by server log analysis software. Customer visits impressions, page views, and orders are easily tracked with software and conversion metrics can then be calculated and analyzed.

With competition for e-customers keen, the cost to convert a prospect (visitor) to a customer and the rate at which visitors to your site wind up purchasing something are critical performance measures.

These are measures that should be calculated and tracked from month-to-month, quarter-to-quarter, and year to year. In addition, these measures are critical inputs when projecting future revenue streams. In short, conversion metrics can become part of your performance benchmarking system.

3.12 Benchmarking

Benchmarking e-business performance using conversion data can be done in two basic ways:

□ As a comparison to a standard, such as best practice conversion ratio for your company, competition, and the industry.

As a comparative analysis over time, such as comparing conversion costs and conversion ratios month-by-month, quarter-to-quarter, and year-to-year.

As a benchmarking tool, conversion ratios are an e-business performance standard that sheds some light on the effectiveness of your business model. It helps you to think about how your business model manages the process of “acquiring” potential customers and then

transforms those leads into customers. At the heart of the process are qualitative factors or aspects your web site. You may see trends in your conversion data that say something about the effectiveness of your user interface and the speed and ease of use your site, including transaction processing and purchasing, and effective promotional activities.

The trends you see in your conversion ratios say much about the dynamics of purchasing online at your site. Because it is a “look-to-buy” ratio, it is a metric that summarizes the customer traffic scenarios of visiting and buying, visiting without buying, and repeated visits before buying. The challenge is to understand how to effectively interpret the conversion rate and how to use it to improve e-marketing.

Here’s how the conversion ratio, in its simplest form, is calculated:

Formula 1

Conversion Ratio = Number of Orders Divided by Number of Visits

Formula 2

Acquisition cost = Advertising and promotion costs divided by the number of

Click-throughs (visits)

Formula 3

Conversion cost = Advertising and promotion costs divided by the number of sales (or purchases)

3.13 Acquisition Costs

In e-marketing, acquisition costs should be calculated and monitored. Before you can calculate an acquisition cost, you should define what it is that is being acquired. Simply stated, an acquisition is whatever you define it to be. It could be the cost to acquire a click-through, a new e-mail address (potential customer), a new subscription, or a new customer. The goals of your e-marketing campaign will help you define an acquisition. Ask yourself what it is you are trying to accomplish with your e-marketing campaigns. In most cases, you are trying to get some type of customer response such as a click-through, sign-up, subscription, or purchase. In any event, all acquisitions involve convincing an individual who you have reached, to engage with your company. This engagement could occur through visiting your site or clicking on a URL in a promotional e-mail.

Here is an example involving a click-through. If you define acquisition as a click-through, then the acquisition cost measures the advertising and promotional cost of one click-through for a particular promotion. If the goal were to generate the most visitors for the lowest cost, then you would look to minimize the acquisition cost. With that metric you can ask yourself some useful accountability questions such as:

How does that compare to other campaigns that you are running?

How does that compare to last month?

- Did we get the best bang for our buck when acquiring these click-throughs?
- How does this acquisition cost compare to the cost of other methods of acquiring click-throughs.

If the acquisition goal is acquiring new e-mail addresses, you should be tracking the cost to acquire email addresses during some time period - such as a month, quarter, or year. You should also define what specific costs are incurred to execute various strategies that help acquire e-mail addresses such as:

- Creative web design costs
- Database management expenses
- Click-through costs
- Copyright acquisition
- List rental fees

Think of the various ways that you acquire e-mail addresses. Perhaps you acquire them via product registrations, e-zine subscriptions, contests, giveaways, and list rentals. You should have a system that not only keeps track of the costs incurred in each acquisition activity and the number of names acquired via each activity (source), but you should be comparing these costs month-by-month, quarter by quarter and year by year.

Frequency, Duration, Reach, and Stickiness

Customer related e-metrics: frequency, duration, reach, and stickiness can be calculated and tracked on a periodic basis. In the subsections that follow, each metric is defined and the formula for each is presented.

Frequency

Frequency is an estimate of how often a prospect or customer visits the site. Frequency for each month is calculated using this formula:

Formula 4

Frequency = Number of visitors divided by number of unique visitors

Duration

Duration is a measure of time spent at your web site. For instance, your loyal customer segment might have an average duration of five minutes per visit, whereas your new customers segment might stay for only two and half minutes. Monthly duration is calculated using this formula:

Formula 5

Duration = Total number of minutes viewing pages divided by number visits during the month

Reach

Reach refers to the potential to gain the attention of your target audience. Used as a standard in the television industry, reach is the number of people (or households) who have the opportunity to see your message given a program's total active viewership. With a web site, reach is the number of unique users who visited the site during a

particular period divided by the total number of unique visitors your site has acquired over time. Monthly reach is calculated using this formula:

Formula 6

Reach = Number of unique visitors during the month divided by the total number of visitors acquired by the site

Stickiness

Stickiness is a composite measure that captures the effectiveness of your content in terms of consistently holding users' attention and allowing them to complete their online tasks. Monthly stickiness is calculated using this formula:

Formula 7

Stickiness = Frequency x Duration x Reach

3.14 Combining Data to Create New Metrics

As you implement your e-marketing plans, you may invent new e-metrics of your own. The more you work with e-metrics, the more ideas you will have about developing new measurements or refining of existing ones. Perhaps you can combine data to create new benchmarks of e-marketing performance.

Effective Involvement Index (EII). EII is a benchmark for retention and stickiness and is calculated as follows:

Formula 8 Effectiveness Involvement Index

Effectiveness Involvement Index (EII) = Unique Visitors x Frequency x Pages Viewed

EII measures the success of disparate marketing efforts that might not be in and of themselves trackable”.

In developing a toolbox of metrics, ask yourself:

What metrics help measure success of my business model?

What metrics are unique to the business model?

What metrics can be derived from the data set (i.e., server log data) that you control?

Keep in mind that more metrics will beget more metrics. The more you think about and invent useful metrics, the more e-business tools you will have. These questions may help you think about new e-metrics:

Can you identify additional metrics that help you dig deeper into your e- business data warehouse?

What metrics matter the most to you?

What metrics could eventually make you change your web site?

By identifying more useful metrics, you will gain a great deal of confidence in your e-marketing accountability system.

ROI and e-marketing Campaigns

E-mail advertising is popular and effective. E-mail is a strategic tool for driving web site traffic, facilitating transactions, attracting new customers and retaining existing ones. However, accountability in e-marketing campaigns, whether they are banners, e-mail or other activities that drive customers to your site, is critical. One way

accountability can be accomplished is through return on investment (ROI) calculations. ROI is a yield concept. Before you run an e-marketing campaign you should try to predict the ROI yield, monitor it during the campaign, and calculate post campaign.

The ROI of an e-mailing is found by dividing the projected net income by the total cost of the mailing.

The cost of the mailing is fixed costs plus variable costs and includes such items as:

Cost of product or service

List

rental

Handling and order processing cost

Packaging Expense

Shipping costs (or digital delivery charges - per unit)

Fixed costs (for entire campaign) such as creative costs and other fixed costs

By running ROI's on a variety of creative messaging, you can test the effectiveness of that creative copy to see what works best. For example, perhaps one promotional copy offers a price break while another one offers free shipping. Which is more effective? The answer might lie in comparative ROIs.

Or perhaps two different creative copies describe the benefits and value of a product. Which one is more effective? Once again, your answer might lie in the return on investment for each creative copy.

Plan, Test, Predict, and Measure: E-Mail Campaign

To improve response rates and ROIs, you need to take advantage of the learning opportunities of email marketing. The relatively low cost of e-mail makes it possible to test a variety of offers through small, tactical mailings. With your tests, you can identify the most effective strategy and deploy it on a roll out of a larger campaign.

e-Mail Marketing ROI Analysis.

The key measures of the Scenario e-Mail Marketing ROI Analysis include projected:

Contribution margin

Net income

Return on Investment

Number of orders to break-even

Number of orders

If the ROI is very low, or the response rate to break-even is very high, you might want to rethink the mailing.

Testing the Campaign

Rather than go ahead with the 100,000 e-mail address mailing, you could test the waters with a smaller mailing. The purpose of such a test would be to validate the assumptions used in the *Scenario E-Mail Marketing ROI Analysis*. That kind of test can be done with variations of the campaign with perhaps as many as six differentiated offers. When multiple offers are tested, the analysis is called an *E-Mail Marketing Test Matrix Analysis*.

Predicting Results in Real Time

Once an e-mail promotional campaign is launched and orders begin to “flow in”, a prediction of the revenue outcome can be made. To predict the revenue from the early results of your campaign, you can use historical response rates or estimated response rates to extrapolate cumulative response rates.

Like many measures, direct marketing campaign results (e-mail or snail mail) follow a predictable pattern. However, there are important variables that impact response rates. One is the delivery method (e-mail versus snail mail) another factor is when the mail is opened. Snail mail can often pile up and be opened by the user at their leisure. Unless the hard copy snail mail piece is trashed, it can have a more persistent and longer life than an evanescent e-mail piece. This is why the e-mail campaign periods are measured in hours and the snail mail method is measured in days.

With e-mail, a very high percentage of orders come within a specified time period, usually a matter of a few hours. That pattern should be measured and tracked. In traditional direct marketing, it is typical that 80-90% of your orders and response will come within the first 2 weeks of the campaign. After this time period, the stream of orders diminishes rapidly. Oddly enough, a campaign will continue to receive orders weeks after it is delivered, even if you have a defined expiration date.

Having some way to predict revenue while the campaign is still in progress is an invaluable tool for the individual who has revenue responsibility for the direct marketing efforts. With this capability you can update your revenue forecasts every few hours, adjust your internal production activities based on the revamped forecast, and learn how to get a better “read” on how well a campaign will do. For example, by using a predictive tool, you may learn that there are a number of factors that can skew your predictive results. These include the following:

The time of the day that the e-mail is delivered.

How long it takes for all of the e-mails to be delivered - depending on the service that you use, it can take several hours for a large mailing to be completed.

The day of the week that the e-mail is delivered. You may want to consult with experts on the best day of the week to deliver the e-mail.

Common wisdom suggests that e-mail delivered on Monday morning

will be ignored among the dozens of other e-mails and the hustle and bustle of a new week. E-mail delivered on a Friday evening may experience a poor response for business products, but it may get a positive lift if it is a consumer, or perhaps a recreational product.

Higher priced products often require a manager's approval and thus a longer lag time between the offer and the order.

Seasonal factors: in the summer, many individuals will be on vacation; the holiday season tends to be a good season for all types of direct mail.

Measuring Final Results

Before-and-after measurement is a type of accountability system. When measuring results you should be asking how do the results of an e-marketing campaign compare to what you predicted before you launched the full campaign?

e-Mail Churn Rate

The churn rate measures how much your customer base "rolls" over during a particular period of time. It is calculated by dividing the number of undeliverable e-mail names plus the names deleted from the list by the total number of e-mail names on your list at the end of the period. An increasing churn rate could cause an e-marketer some alarm.

The goal is to have loyal customers, retain as many customers as possible and therefore optimize the lifetime value of customers.

Churn rate is an important measure to track as you attempt to reach a particular list size goal. If you do not account for churn rate or erosion of your list, it will be difficult to accurately measure your list growth.

The churn rate of your e-mail list is affected by the following factors:

Customers who opt out (request to be deleted from your list).

Names that are suppressed from a master list. If you manage your own mailings, you may have a master list of e-mail addresses that have requested removal from all mailings. If you are working with a third party mailer, they will likely have such a list.

The e-mail names that cannot be delivered for a variety of reasons: undeliverable; user cancels email account, etc.

3.15 Marketing

The American Association of Marketing defines marketing as: ... "the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational goals."

Traditional marketing refers to the all-important 4 "P's" - **p**roduct, **p**ricing, **p**lace (placement or distribution), and **p**romotion. These are the elements of the "**marketing mix**." To the outsider, promotion tends to dominate the marketing agenda, but the real trick is to use these four elements to create a marketing program that enables the exchange with

consumers in the marketplace. The underlying rules of marketing do not change on the Internet, but the way the marketing mix can be deployed changes radically

3.15.1 Product or service:

Marketing helps to define the product or service and then match that product or service to a customer need. There is a two way street between product development and marketing rather than serial relationship in which the product is developed and then thrown over the wall to marketing. Marketing has a critical role in defining the product itself. A firm can spend large sums of money on advertising or sales promotion, but it stands little chance of success if the product is of poor quality, is priced improperly, or does not have adequate distribution and availability to consumers. Marketing has a role in ensuring product suitability to the market

3.15.2 Price: The “holy grail” of pricing is to charge each customer exactly the maximum price he/she is willing to pay. This differential pricing or dynamic pricing can be done through versioning of products. A microprocessor manufacturer may release a lower functionality version of their microprocessor at a lower price even though the cost of producing that device is the same or even more than the higher function version. The airline industry is the master at differential pricing for different customers. Two passengers may be sitting side by side and one of them has paid three times as much as the other. In this case, the versioning may be seen as either due to earlier purchase, more flexibility in flight times, or willingness to buy on-line.

Priceline.com took this approach by introducing the reverse auction or “name you own price” system. The purchaser tells Priceline the maximum price he or she is willing to pay. The airline tells Priceline the minimum price it will accept. Priceline makes the deal and pockets the difference. If the buyer’s price is not higher than the sellers offer, Priceline declines the sale.

Baker et. al. in Harvard Business Review have show how e-Commerce allows three approaches to improved pricing through precision, adaptability, and segmentation. Precision is placing the price at the right point within the range of pricing indifference. There is a range of prices within which consumers do not pay much attention. Pricing at the top of this range can make a big difference for profits. Adaptability allows one to change prices quickly to adapt to shifts in demand. Segmentation allows different prices to be charged for different kinds of consumers. This is a powerful tool, but it must be wielded with exquisite care.

Dynamic Pricing can be very controversial. When Amazon.com was found to be selling both DVD players and CD’s to different customers at different prices, there was a customer uprising that led to an Amazon.com apology.

3.15.3 Place or distribution:

Product placement can be the item that makes or breaks a product. The traditional example cited is shelf space in the supermarket or retailer. This gives the large chains like Wal-Mart enormous power with suppliers. If the suppliers cannot get the product placement, they cannot get the sales.

In the PC-Era the equivalent situation was software shelf space at the stores. Those software companies that could not get shelf space could not get sales. This broke down rather dramatically when the internet enabled creators to go directly to consumers far more easily than they had in the past. As the Internet retailing space became more and more crowded, the ability to gain attention became more and more difficult. Eventually it became critical for suppliers to gain placement on one of the more popular portals such as Yahoo, AOL, Amazon, or MSN.

The meteoric rise in popularity is an interesting case in point. Started as a very small distribution investment newsletter by two brothers, the Motley Fool was given prominent placement on AOL in the early days. The rest, as they say, is history. The Motley Fool became one of the most popular investment sites on the Internet and eventually out grew its need for AOL.

3.15.4 Promotion:

Promotion is best viewed as the communication function of marketing and is accomplished through a promotional mix that includes:

- advertising,
- personal selling,
- publicity/public relations,
- sales promotion, and
- direct marketing.

Promotion is often seen by outsiders as the primary function of marketing, but without the other three “P’s,” the marketing function would be difficult to accomplish.

3.16 The Basics of Web-based Marketing

There are few simple things that any B2C e-Commerce site must do to be successful. These actions are not much different for B2B sites, but the effects are usually clearer in the B2C cases. The requisite actions for an e-Commerce site include:

Make them aware of your site.

Get them to your site.

Get them engaged immediately

Provide a structure and navigation system that leads them in the most productive directions and avoids dead ends.

Keep them interested.

Close the sale.

Leave them wanting to come back for more.

It is obvious that a deep knowledge of the customer is a key to each part of this strategy. It may not be as immediately obvious, but product selection is just as important. If we consider each of these in turn we can gain an overall picture of what it might take to be a successful e-Commerce site.

3.16.1 Make them aware of your site.

The ironic part of the entire e-Commerce surge is that it has generated huge growth in traditional advertising media. In some regions, especially California and the Boston area, billboard advertising has surged with large ads touting the latest “CompanyoftheDay.com” in the hope that commuters will see the billboards and rush home to log in and see what you’ve got. Clever advertisements in magazines try to get you to put down the magazine and log into their site. AOL has barraged the market with “free” CD-ROMS that allow you to connect to their network for free (at least for a short time). Television advertising is both the most expensive route and one of the most imaginative. Each football Super Bowl in the United States is an exhibition of the most creative and imaginative ad agencies approaches to building brand awareness.

The perceived need for “first mover advantage” and the relentless effects of Metcalf’s law combine to make eRetailers, in particular, nearly desperate for brand awareness and access to customer eyeballs. This has led to some kinds of marketing that can only be described as desperation marketing.

Paradoxically, many of the greatest examples of building brand awareness came not from traditional marketing approaches but were much more the result of the “virus like” spread by word of mouth that has now become known as “viral marketing.” Yahoo, eBay, AltaVista, and Netscape were all sites that benefited from the effects of viral marketing.

3.16.2 Get them to your site.

Once aware of your site, the customer needs to be able to get there easily and quickly. In this regard, an easy to remember and type web name is an enormous asset. This can be one area beside awareness) in which the established players have a distinct advantage over the newly established e-Businesses. It is much easier to find www.ibm.com than it is to find www.penguincomputing.com. When addresses were limited to .com, .net, .org, and .edu in the United States, this led to a new economy land rush to stake out claims too easy to remember or very familiar names. At first there was some confusion over rights to names and how that related to trademark and brand names, but eventually a process was set up that made it a bit easier for established brands and trademarks to reclaim their names on the internet as well. During this period there was a real opportunity for the cyber squatters to grab

established names and then sell them back to the owners for a handsome profit. e-Businesses soon learned that they had to move quickly to protect their names and also to acquire any other names that might be confused with them or used to embarrass them. It was not enough to own IBM.com, but you also had to acquire IBMSucks.com to avoid embarrassment. This was often hard to do since there are so many ways to alter common names. Whitehouse.com is a familiar example of a failure to protect a name. Many embarrassed parents found that using the .com suffix rather than the .gov suffix took them to a pornography site rather than the residence of the U.S. President.

Other companies took advantage of common misspelling to siphon off a few of the customers from the most popular sites. A site called Yahho.com could attract a certain percentage of the millions of visitors who visited yahoo.com every day.

3.16.3 Get them engaged immediately. Once you get them to your site, you usually have only a few seconds to engage the customer in your site. If they come looking for Pokémon and you cannot provide it, then you had better present an attractive alternative very quickly. Failure to engage the customer leads to many events in which a potential customer enters a site and leaves within seconds.

3.16.4 Provide a structure and navigation system that leads them in the most productive directions and avoids dead ends. If the site takes forever to load and then presents an opaque interface, the site is unlikely to lead to much sales activity. People are impatient and not willing to devote a lot of time to learning about a site. They want to get in, find what they want, and get out quickly. This can lead to some real design time paradoxes. Many design focused marketing consultants want to bring the look and feel of the brand to the Web. Although this focus on the brand identity is generally a good thing, it can be a challenge for web design. Highly designed sites with lots of graphics can be very slow to load over any small bandwidth connection, and most persons today still connect to the internet over POTS (plain old telephone systems). Finding the right tradeoff between design and speed can be critical. Yahoo is a site that is known to favor speed over design. Although their sites are not the most beautiful to be found on the Internet, they generally get the users what they want quickly and with minimal fuss.

3.16.5 Keep them interested. Getting customers to stay and then to return again and again is one of the most difficult and important tasks for designers of e-Commerce systems. There are several strategies used to do this. Keeping the information on the site fresh and up-to-date is an entry-level requirement. Many sites do not present anything new to the user on the return visit, and the customer eventually tires of the site,

because they feel they have seen it all. Mass personalization or mass customization, discussed more fully below, is an excellent way to keep them interested. If the site can be made to look like their own site, then they may feel more interested in returning. Yahoo, MSN, AOL, and many other sites allow customers to create their own personal look and feel for the site portal. Many sites have adopted Yahoo's practice of designating this as "myYahoo" or "mySAP." UCLA even adapted the Yahoo approach by creating a "myUCLA" portal for students. Personalized sites also make it easy to provide recommendations and help to the customer based upon a customer profile and past buying patterns. Amazon's provision of customized recommendations of books in related areas is an excellent example of customization.

Since so much of what customers do on the Internet is searching, the inclusion of a good search engine is becoming de rigueur. Competition is heating up between engines on who is faster, who is more complete, who provides fewer paid ads, who groups results most usefully, and ultimately who provides the most appropriate results to the customer. There is another tradeoff that needs to be made between using the search engine to provide references to those things that you want the customer to see and angering the customer by providing too many self serving results.

Another way to keep the customer interested is to provide some kind of service on the site. An automobile site might provide a calculator that will allow the user to calculate payments on particular car, or a mortgage or real estate company providing mortgage payment calculations on various homes.

3.16.6 Close the sale. Customers who abandon the purchase prior to closing the sale plague E-Commerce sites. This is the most frustrating thing for businesses because you have an interested, self-qualified customer who has taken the time to fill his or her shopping basket, but you failed to close the sale. This can happen for several reasons. Among the most likely:

- The customer became confused and was not sure how to finish. This happens far too often when the navigation structure does not lead the customer easily through the sale. Perhaps they load something into the shopping basket and then go back into the store to find something else. What if they cannot find their way back to the shopping basket?
- The customer became irritated and abandoned the process in protest. This can often happen when the closing process reaches the point where information is being requested of the buyer. If the buyer feels that too much is being asked, or if the buyer loses trust in the seller, the buyer may abandon the process rather than providing the requested information. This is another place where personalization can really help. If the buyer has already provided information as part of the

personalization process, then the closing or “check-out” process may not be so overwhelming.

- The customer never intended to buy in the first place. This is the bane of the car sales sites. Research has documented that people love to shop on the car sites, but when it becomes time to purchase, they shut off the computer and drive down to the car lot. Many will go through the entire web process to get the options they want and to find the best prices and deals, but they abandon the process just before the closing. Window shoppers are a fact of life on the internet, but not many sites have a “just looking, thank you” option.

3.16.7 Leave them wanting to come back for more. The cost of acquiring any customer makes single transactions far less profitable (or even more unprofitable) than return transactions. Once you have spent the money to acquire a customer, you have got to bring them back again and again. This requires a satisfactory experience from start to finish. It demands that you figure out all of the steps above. It also requires that the goods be delivered promptly and correctly and that provisions are made for easy returns and exchanges. Increasingly, customers are demanding, and expecting, more and better customer service on e-Commerce sites.

3.17 Mass Customization

Jeff Bezos, CEO of Amazon.com sums up mass customization as “If you have 20 million customers, you should have 20 million stores.” His prescription for creating the right kind of customer experience is three fold:

- Listen to Customers
- Invent on behalf of customers because it is not their job to invent on behalf of themselves.
- Personalize. Put each customer at the center of his or her own universe. Until recently, mass customization was an oxymoron. Today it is a central tenet of the information economy. Companies like Dell Computer have grown to be the world’s largest supplier of personal computers by building every computer to order. The young upstart has eclipsed companies that clung to the old model of mass production, channel distribution, and large specialized inventories. Mass customization is a hallmark of many e-Businesses. How to put that customer at the center of his or her own universe, and how to do that for millions of customers? Those are the key questions for mass customization.

That is the paradox of personalization or mass customization. In order for both companies and consumers to gain the benefits of mass customization, consumers must accept an invasion of privacy that can be chilling to many. The privacy-personalization tradeoff is a dynamic system with constantly changing boundaries. There have been many efforts to break the privacy-personalization trade-off, but nothing has yet

emerged that brings a level of comfort to the consumer. The most promising approaches allow users to store their personal information with a trusted steward. Of course companies view customer information as vital to their marketing efforts. They would love to have it. “It used to be that the most important thing you could make was a product, and you went looking for a customer for that product. In the information age, the most important thing you make is a customer, and then you go looking for products for the customers that you have”

In mass production, companies forecast product mixes, create the products through mass production, and then market and sell the products they have. In mass customization, companies get to know their customer and then build the products for their customers.

In mass production environments, companies use price-cutting and advertising as tools for moving market acceptance. The automobile industry is a case in point. When slow selling models clog dealer inventories, the automakers must announce expensive rebate programs to clear the chain of excess inventory. Automakers have now suggested that they would like to shorten the production process enough to be able to adopt a build to order approach to automobiles. That will be an ambitious undertaking, but the rewards would be huge.

Mass customization can lead to savings in the upstream supply chain as well as the downstream. If a company can know instantly what the buyers want and communicate that information up stream, then the factories know what to produce and the suppliers know what to deliver and, in turn, produce for the manufacturers. This allows cost to be wrung both from the inventory process and from the supply chain itself.

3.18 Viral Marketing

There are some products that find a need and a community without a structured marketing campaign and then spread through out that community to serve the need. The product is spread by word of mouth or by passing on a copy or a URL to friends and colleagues. Viral marketing is powerful force when it works, but the circumstances under which it works are not yet well understood.

The spread of PK-Zip is an excellent example of viral marketing. The pain that PK-Zip relieved was the pain of exchanging or backing up large files. PK-Zip was created as a shareware program that would let a large file be compressed efficiently to a much smaller size. This greatly facilitated the exchange of large data and program files. Knowledgeable early adopters began to use PK-Zip to compress and exchange files. The program was available as a share-ware program which could be downloaded for free. If the user then found the program useful, they were encouraged to pay for that program by sending the money to PK-Ware. The program spread rapidly since every time someone sent “Zipped” data to someone else, the receiver had to become a user of PK-Zip as well. The constant exposure, the free download, and the useful functionality all combined to make PK-Zip the absolute market

dominator of the compression tools. Once again, the forces of “winner take all” economics made competing with PK-Zip a nearly futile task. Many of the products that came to dominate their niches in e-Business did so through some aspects of viral marketing. The first Mosaic browser, The Linux Apache Web server, The Unix SendMail application, and the Yahoo search engine, are all examples. Sometimes viral marketing can be encouraged, nurtured, and even protected. The America On-Line instant messaging system (IM) has spread through viral marketing and become a key competitive advantage for AOL. Because AOL has the largest number of network subscribers, it is imperative that any competing IM tool be compatible with AOL IM. Although that is fairly straight forward technically, AOL has gone to great lengths to block Microsoft and other competitors who have tried to allow their subscribers to IM AOL subscribers. In the meantime, the AOL IM tool continues to spread as AOL users send invitations to others to join them in IM. When you can get your own customers to market your products without any compensation at all, then you have achieved true viral marketing.

3.19 Community Based Marketing:

Use of communities to develop targeting marketing programs is very closely tied to viral marketing. Once a community has developed to a sustainable size, it will often become a kind of marketing arm for the company. Many companies have had “User groups” that act like communities organized around specific products.

AOL recognized the value of communities very early on. They recruited and supported “volunteers” who tended the communities, enforced the rules, and assisted in AOL marketing. As the communities grew and AOL evolved its business it became less and less clear whether the “volunteers” were actually underpaid staff. Community development is closely related to Metcalf’s Law in which the value of a network of n persons is equal to the square of the number of persons (n^2). Reed has pointed out that Metcalf’s law really relates to one-to-one interactions among n persons. He has proposed “Reed’s Law” as an alternative. If one calculates the number of communities that can be formed from n persons, then it turns out that this is proportional to $n!$ (n factorial- or $n \times n-1 \times n-2 \times n-3 \dots 1$). This is an even more powerful scaling factor than Metcalf’s law. Community development has been a very important part of Internet marketing.

3.20 Guerrilla Marketing

Guerrilla’s are known as partisan fighters who use primitive tools and weapons and a superior knowledge of the landscape to fight a war against a foe who is vastly better equipped and resourced. Guerrilla marketing is then an effort to use low cost primitive means of reaching customers rather than to use the slick high budget glossy print ads or expensive television advertising.

In some cases guerrilla marketing campaigns make an effort to ignite viral marketing. Lee Apparel, launched a guerrilla marketing campaign for its fading Lee Dungarees brand by emailing the URL's of three fake websites to 200,000 names on a marketing list. Amazingly, there was no mention of the Lee brand on any of the villain's sites. This was a clear effort to induce the viewers to email the URL's to curious friends and thereby virally spread the awareness of the villains that were later to be vanquished in a \$10 million radio, television, web, and poster campaign.

3.21 Desperation marketing

Success in e-Commerce depends upon first mover advantage, obtaining customer lockin, and network externalities. Barriers to entry by competitors are low. Brand recognition is important. These have combined to create a sense of desperation for new dot-com companies as they enter markets crowded with competitors. This has also generated a surge in print, billboard, and media advertising to establish brand awareness. Rather than harm traditional advertising outlets, e-Business has generated a flood of new advertising revenues!

Another desperation marketing play was giving something away for free. There were too many variations on this theme to count!

Desperation marketing was so focused on creating the buzz that it often neglected to mention the basics, like what the company does for example. One forgettable ad from Cyberian Outpost (www.outpost.com) showed Gerbils being shot from a cannon. It did not, however, make it easy for viewers to discover what Cyberian did, which was on-line computer sales. The questionable taste displayed in ads like this could generate as much negative buzz as positive. Beyond.com's "Naked Man" ads (www.beyond.com) were another example of advertising that may have been amusing to some, but was quite negative to others. The quest for recognition through exquisitely bad taste continued as ecampus.com had a young man recite the alphabet in belches.

Perhaps the rationale behind this kind of advertising was the old adage "there is no such thing as bad publicity." Unfortunately, some dot-com advertising has proven that this adage is not always true! The dot-com advertising experiences have also demonstrated, once again, that branding is very important, is hard to do, and takes quite a bit of time and effort. There are no shortcuts to branding.

3.22 Branding

In the battle between "bricks" and "clicks," branding would be an important advantage that "bricks" often had over "clicks." It was one more piece of evidence that it could be easier for "bricks" to become clicks than it would for clicks to emulate the bricks. Names like Amazon.com were quickly becoming known to consumers and could be expanded into related areas. It was another situation entirely for the many "YetAnother.com's" who had to compete in a shrill market for

consumer attention, and many felt that desperation marketing was the best way to break through the noise.

3.23 Timing of payments and the “pain of paying”

The total aversion to making a payment can be divided into three elements.

The first is the disutility of payment, the opportunity cost in utility of the money that is spent.

The second element is the hassle associated with paying: for example, clicking on

a link is much less hassling than filling in all information in a credit card slip.

The third element, the remaining aversion to making a payment when the effects of foregone utility and hassle are taken into account, is called the “pain of paying”

Thus, whether pay-per-use will be preferred to or over pre-payment will depend on the degree of dread and also on the time scale differences between consumption and payment. The closer in time payment is to consumption; the smaller will be the difference between pre-payment, post-payment, and pay-per-use. The time scale used in our experiment is rather short and as such our estimation of the pain of paying is likely to be too low.

3.24 Mental accounting and the pseudo sunk cost effect

If consumers consider the money deposited in a mental account to be non-fungible across accounts then an effect similar to that of a sunk cost can occur. Consumers depositing money into an account such as an electronic wallet that is earmarked for a specific purpose will see this money as not fungible, and treat it as gone. This type of mental accounting can lead to overconsumption and overspending of objects in the domain of the account x , and the corresponding under consumption of objects outside the domain of the account, y .

3.25 Self-control issues

The negative effects of payment methods can also have a positive side for individuals who have self-control problems, helping these individuals to control their consumption. Suppose a buyer, Chike, knows that once in front of a computer he will spend too much time browsing content and not enough working on productive tasks. Imagine further that Chike’s favorite content site is a for-pay site offering a variety of different payment methods. Chike might pick a payment method that would help him combat his desire to browse the site and avoid work. He might opt for a cumbersome micro-payment method, small payments made separately for each individual consumption, to a straightforward

subscription method in order to make the transactions visible and help lower his consumption.

3.26 Categorization of payments

As the units sold become more and more atomistic, the per-unit price decreases. At very atomistic levels, the price becomes very small, and there is the possibility that it will be close to zero. It is possible such small amounts, for instance, small fractions of a cent, can be categorized and perceived as zero. Consider a consumer, Bertie, who can buy news items at 0.03 cents per item, with a system in place to aggregate payments into a monthly bill. Bertie might categorize the price as zero (in a sense, Bertie considers 0.03 cents too low a sum to warrant intellectual consideration) and, acting in accordance, will consume as if the news items were free. The counterpoint of this categorization is the bill shock that Bertie will experience at the end of the period.

The implication here is that as micro-payments decrease in value, the mental accounts used will generate comparisons with different types of expense, changing the shadow cost of the money consumers use to evaluate their purchases.

In summary, there are two effects of categorization: with small payment amounts, categorization into zero, and, with larger payment amounts, the allocation into different comparative categories.

3.27 Model

In this section we develop a model of consumer decision making that takes into account the various economic and psychological issues mentioned above (effort of payment, pain of paying, mental accounting and the pseudo sunk cost, and categorization of payments). The model, as well as the experiment, are set in a context of purchasing digital content on the world wide web, where consumers pay for information they browse and consume. The context of content selling was selected because it is familiar to our respondents, because it allows us to sell content for real in the lab, because it provides a very high flexibility in payment method design, and because it is an important application area for payment methods.

3.27.1 Modeling pain of paying and sunk-cost effect from cross condition quantities

Now show how comparisons of quantities consumed in each method of payment can be used to back out the importance of the pain of paying and the sunk-cost effect. Assume that each consumer j has a valuation $v_j(i)$ for each piece of content i . There are M (for many) pieces of content, so $i = 1, \dots, M$.

Represent unobserved factors beyond the experimenter's control with an i.i.d. additive stochastic disturbance to the cost of each decision, ϵ_{ij} , with $E[\epsilon_{ij}] = 0$ and $\text{Var}[\epsilon_{ij}] < 1$. Denote the different costs thus:

p = Unit price

h = Hassle of approving a payment

d = Effort to make a decision

n = Pain of paying

The pain of paying n is divided in two parts: one, the intrinsic part, is associated with the actual payment, regardless of its salience; the second part is associated with the salience of the payment. Denote the influence of salience by α , so that $(1-\alpha)n$ is the non-salient pain of paying and αn is the salient part.

In summary, our use of the conditions is as follows: *sub* is the baseline case; *post* allows us to look at the effect of price; *micro* allows us to look at the effect of salient pain of payment; use *pre* to determine the extent of the sunk-cost effect; and to verify that the hassle involved in *micro* is not relevant use a *sub+h* method.

3.27.2 Heterogeneity in valuations and distribution of quantities consumed within each condition

In order to further validate the results of the comparisons of quantities predicted in the previous section, make some predictions regarding the distribution of purchases within each method. Note that these will be different depending on the marginal cost of the method, and use these predictions to add face validity to the framework.

3.27.3 Evaluating desire for self-control through stated preferences

How could one test whether consumers use payment methods as self-control devices? Self-control by itself is not directly evident from behavior since it involves a behavior with a particular intention. To measure behavior as well as impressions and intentions in order to classify it as self-control. More specifically, for a behavior to be considered as self-control, it must exhibit two components:

First, the consumer must consider that controlling one-self is desirable, and

second the consumer must follow-up and engage in self-control.

In our payment scenarios, the translation of these conditions implies that a consumer considers that he will make better decisions with the micro-payment method compared with other methods, and that he will indeed prefer micro-payments to the other methods. Now use our model to test these predictions/implications.

3.28 Experimental validation

3.28.1 Interactive Content Purchasing Experiment

The experimental setting was content selling, similar to the emerging attempts to sell content on the World Wide Web. Within this general

environment, you implemented five different payment methods as discussed earlier (sub, pre, post, micro, and sub+h). (<http://www.elsewhere.org/cgi-bin/postmodern/>). The news and science information pages were created to be at a middle level of interest and were taken from major web sites. Take particular care to make sure that the appeal of all articles in this category would not diminish over time, and in particular that their relevance would not change during the weeks conduct the experiment. Because selected news and science information pages that were not time sensitive, they were also less interesting in our subjective assessment.

Finally the cartoon category was chosen as one in which the students had the most interest. When choosing the specific cartoons within the genre, picked ones that appeared in press years before the study to maximize the chances that the students had no knowledge or memory of these cartoons.

Design: The experiment had 5 conditions:

micro-payments,
pre-payments,
postpayments,
subscription, and
a subscription+hassle condition.

In each condition respondents could look at four types of information:

cultural studies,
news,
science, and
cartoons.

Micro-payments: In this condition respondents paid for each page they saw. After clicking on a link to one of the four categories, and one of the 50 items in each category, respondents were asked if they wanted to pay the specified amount (0.5 cents for an article, 3 cents for a cartoon). Note that an item that has been paid for was considered purchased, which meant that respondents could revisit previously bought pages as many times as they wanted without incurring additional charges.

Post-payments: This condition resembled the micro-payments condition with one main difference: respondents were not asked to approve each transaction. At any point during the experiment, respondents could examine their electronic wallet, which indicated the sum of money they have spent up to that point. At the end of the study the sum of payments (as indicated in the electronic wallet) was deducted from the show-up fee.

Pre-payments: This condition resembled the post-payments condition with one main difference: respondents were not allowed to view any article or cartoon unless they had sufficient money in their electronic

wallet to cover this expense. When the amount of money in the electronic wallet was not sufficient, respondents were informed that their electronic wallet was short of cash, and they could deposit more money into it.

Subscription: When respondents entered a category they had not subscribed to, they were prompted with a window asking them if they want to subscribe to this category. If they answered positively, they were charged the appropriate amount, and were presented with a screen showing them all the information available to them (names of all the articles or cartoons). Subsequent entries to the same category did not involve the subscription window and respondents had free access to view and browse this category as much as they wanted. At any point during the experiment, respondents could examine their electronic wallet, which indicated the sum of money they have spent up to that point. At the end of the study the sum of payments (as indicated in the electronic wallet) was deducted from the show-up fee.

Subscription+hassle: Overall, this condition was very similar to the subscription condition with one major difference: before showing any article or cartoon, respondents were asked to approve that indeed they wanted to see that item. Note that this added hassle was such that the physical activity in this condition was the same as in the micro-payments condition.

3.28.2.1 Expenditures:

First examine the total expenditure across the five different conditions. If the results show that there was no difference in spending between the subscription+hassle and the subscription conditions. Then collapse the two subscription conditions into a single category, subscription, for this analysis. An Overall ANOVA showed that payment method had a significant effect on total expenditure.

3.28.2.2 Quantity:

Next, examined the number of items respondents saw in each of the content categories, across different payment methods. Again, there was no difference between subscription and subscription+hassle — showing that the added hassle component of physically approving a payment did not influence browsing quantity³. Based on this similarity, the subscription and subscription+hassle were combined into a single category, subscription, for this analysis. In terms of the categories of information expected the news and science categories to have approximately equal appeal; indeed there were no differences in viewing or payments for these two categories. Thus, collapsed news and science together for analysis and presentation. Respondents in the subscription

conditions viewed many more cartoons than the respondents in the other three conditions.

3.28.2.3 Within-method analysis

At this point analyze the distribution of purchases within each method of payment. The relevant predictions were made. In summary, expect the histograms to have more mass to the left as the cost increases, so subscription will be the one with less mass to the left and micro-payments will be the method with most mass to the left. For this analysis have collapsed the news and science content categories, as there was very little difference between them.

We expected that the cartoon category, being the preferred content and also the one with the highest prices, would be the one that has more dramatic results. The same general pattern is visible in the news and science quantities, but is less pronounced.

This is not surprising given the lower preference and price for these, leading to a higher relative importance of the individual factors (the β_{ij} , whose distribution don't know). The free category, cultural studies, exhibits the reverse pattern. By design, since the time of the study was fixed, this category (as well as watching a blank screen) functioned as a default substitution to the paid categories (with nothing else to do, the fewer for-pay pages one subject browses, the more free pages she may browse). Note that when the price is zero all other effects except the hassle, h , are also zero: there is no need for a decision if there is no payment, and there is no pain associated to not paying; plus, our data shows no effect of h , therefore only the time constraint and alternative uses for time are relevant in decisions to browse cultural studies content.

3.28.2.4 Self reported perceptions and preferences over methods

Finally, examined the predictions of our respondents about their own behavior across the different payment methods. Before asking participants to compare the four payment methods, they were presented with description of all methods. This was followed by questions that required subjects to divide 100 points between the methods in a way that reflected their relative preferences. There were no effects of the condition respondents experienced during the study (the one they had the most first hand information about) and the three other conditions (that were only described to them) when answering these questions, which take as an indication that the explanations were clear. The first question simply asked which of the payment methods would they prefer. The next four questions all examined aspects of decision quality across the different payment methods. In these questions respondents indicated in which method they: expect to view more content; expected to be more careful when making decisions; expect to view higher quality content, and expected to spend more time per article.

3.28.2.5 Self reported data vs. actual behavior

One of the advantages of having both decisions and self-reports is that can compare what respondents stated they would have done (in the questions following the browsing) with what they actually did during browsing. In terms of overall expenditure respondents expected subscription to be higher than the other three methods, and also post-payment to be higher than pre-payment and micro-payments. The intuitions in this case were generally accurate.

In term of quantity of pages viewed (consumed), respondents expected subscription to be much higher than the other three payment methods, which were expected to be the same as each other. This prediction is consistent with an intuitive model that is concerned solely with price. On the other hand, the results of the actual behavior, revealed a different (almost opposite) pattern.

4.0 Conclusion

In terms of self-control, the self-reports of our respondents showed that they believe that pay-per-use is a good way to control their behavior in terms of quality, quantity, time and spending. However, the subjective reports also showed that when given the choice between payment methods they prefer subscription, which they cannot use as a self control device, but reduce substantially the pain of paying. Thus, there is no support for the consideration of self-control in our setting.

Next, look more closely into the results and get a sense of the magnitude of the pain of paying and the sunk cost effect. Ignore the influence of the hassle of approving for two reasons: first, it does not lead to any significant differences between the two subscription conditions; second, Consider that the task itself is not very complex (clicking a button) and the delay in consumption is very small compared to the time spent in other tasks.

The results suggest that consumers are both aware of and influenced by the pain of paying when browsing content.

4.0 Summary

The development of an e-marketing plan begins with an in depth understanding of your business model. This unit briefly described ten e-business models. Business maybe a hybrid. Whatever model, e-marketing plan should discuss how business model will use information technologies to manage the marketing mix, optimize web site content, and allocate resources to carry out strategies. The process of developing an e-marketing plan is a challenging one. A number of barriers must be overcome to prepare a great plan and to successfully implement it. For starters, writing a lengthy document of any kind is difficult. Example plans and well-designed outlines and templates increase the odds of

preparing a clear, concise, and coherent e-marketing plan. When writing an e-marketing plan you should include analyses in the forms of worksheets, tables, and charts. The right analyses not only help you to make your point, but also could produce forecasts and budgets for which e-marketers will be held accountable. You must answer the question: what forecasts and budgets to include in the plan? In addition, you must identify forecasting methods that are congruent with your business model.

As you implement your e-marketing plan, accountability is a critical requirement imposed by both management and investors. In the implementation stage, you may test, measure, and re-test your e-marketing campaigns before a full roll out. When testing your e-marketing campaigns and strategies and when making your post e-marketing campaign assessment, accountability is achieved through the use e-metrics. The term e-metrics refers to measurements and ratios that help marketers forecast, track, discover trends, monitor, and control e-customer behavior, cost, value, and acquisition, Web site traffic, performance, and revenue and e-promotional campaign performance.

6.0 Teacher Marked Assignment

- 1a. What is e-Marketing Planning?
- b. List the e-Business models you are conversant with
2. List and discuss the requisite basic actions for an e-Commerce site.
3. Discuss mass customization
4. Explain the terms: viral marketing, community based marketing, guerrilla marketing, desperation marketing
5. Explain the psychological phenomena and their effects on payment methods
6. List five conditions in experimental validation

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UNIT 7: Legal, Ethical Issues and other Policy Issues in e-Business

Table of Content

1.0 Introduction

2.0 Objectives

3.0 Main Content

3.1 Global Regulatory Environment

3.2 Law and Ethics

3.2.1 Ethics

3.2.2 Security

3.2.3 Privacy

3.2.4

Intellectual Property

3.2.5 Antitrust

3.2.6 Price Fixing

3.3 Globalism in e-Business

4.0 Summary

5.0 Conclusion

6.0 Tutor-Marked Assignments

7.0 References/Further Reading

1.0 Introduction

Ethical behavior, while always an important aspect of business has become even more important over the past several years. Ethical, as defined by www.dictionary.com is: "Being in accordance with the accepted principles of right and wrong that govern the conduct of a profession". The use of the Internet has brought about additional ethical issues that companies have had to address in order to assure their customers that they are the best company to do business with. This paper will assess the effects of the global regulatory environment on e-marketing and will contain a sample code of ethics.

2.0 Objectives

At the end of this unit you will be able to:

Outline the code of ethics of e-Marketing

Discuss law and ethics in e-Business

Understand globalism in e-Business

3.0 Main Content

3.1 Global Regulatory Environment

Now that the Internet is a popular means to conduct business transactions, it has also become a media upon which to provide marketing materials. With a growing section of the population in Nigeria having access to the Internet, it is assumed that persons of all age and educational levels will be viewing the content on many of these sites. In this type of environment, it is possible for fraud and or harassment of consumers to occur. Legislative bodies in not only the

Nigeria, but around the world are working to deal with these issues. They want to protect their constituents, while allowing e-business to continue to grow and thrive.

To this end, there are a number of professional organizations, including the Direct Marketing Association (DMA) that has put together guidelines for their members. The idea of self-regulation is that it is preferable to have self-regulation instead of government regulations (www.the-dma.org). Self-regulations are guidelines that are voluntarily followed by the persons involved. There is no penalties that can be enforced when someone does not follow the guidelines. The only enforcement possibility, when applicable, would be to revoke a company's membership in an organization.

Depending on the scope of the e-marketing, the regulations of other countries might also need to be followed. For large e-marketing firms, all of these regulations might prove to be costly to the companies. If they conduct business across many states and/or countries, they might have to hire someone just to monitor the different rules and regulations. This person would then be responsible for ensuring the company does not violate these regulations, subjecting the company to potentially costly fines.

Sample Code of Ethics

The following is a sample code of ethics that was created for All Rights E-Marketing, a hypothetical company working in the e-marketing field. This code of ethics was created as a guide for All Rights E-Marketing to follow when they are conducting business with individual consumers and with other businesses. It will be distributed to all company personnel and it will be required that they sign a form stating that they have read this code of ethics. This code of ethics has been created after viewing several other codes of ethics, including: <http://www.afpnet.org/> and www.the-dma.org.

Section 1 - Outline of the Code of Ethics for All Rights E-Marketing

All Rights E-Marketing is a dedicated to being an industry leader in ethical business conduct and to set the level by which other companies measure themselves. To achieve this goal, it is expected that all employees conduct themselves in an appropriate manner at all times while representing All Rights E-Marketing. This means that employees will conduct business with others using only ethical, legal, and truthful means. They will not use any means that are misleading, involve purposeful switching of offers, or any other means that intends to mislead customers. Through this high level of conduct, All Rights E-

Marketing will be the good corporate citizen that it strives to be.

Section 2 - Consumer Privacy

All Rights E-Marketing considers the business provided by our customers to be a privilege and an honor, not a right. To this extent, we will honor the customer's wishes as far as the privacy of any information they provide to us. Anytime customer information is gathered from the website, a link will be provided to an informational page that specifies exactly how this information will be used. All Rights E-Marketing will only use this information in the manner intended and detailed on these pages. Any planned deviations must be authorized by the consumer. Consumer information will never be sold or given to any other companies without the consumer's direct permission.

Section 3 - Ability to be removed from Contact Lists

All Rights E-Marketing is committed to honoring its customer's wishes. We will make it easy for the customer to remove themselves from any of our contact lists that they are on. When contacted, they should be removed all lists that are maintained by All Rights E-Marketing.

Section 4 - Offers

Any offers that are provided by All Rights E-Marketing will be clearly worded and have all costs and conditions clearly defined and listed. There will be no small print terms and exceptions to offers and no hidden fees to offers. By offering a clear and full disclosure up front, All Rights E-Marketing will significantly reduce the occurrences of misunderstandings that could result in negative feelings towards All Rights E-Marketing.

Section 5 - Spam and Email Solicitation

All Rights E-Marketing will not participate in mass emailing (also known as Spam) to consumers from lists that are not legitimately collected. We will only email consumers who have signed up to receive emails from All Rights E-Marketing or who have signed up for legitimate email lists.

Section 6 - Legal Standards

All Rights E-Marketing will conduct all business transactions in accordance with all applicable laws for the States and/or counties that they are conducting the business transactions in. All Rights E-Marketing will strive to avoid any actions that might be construed as toeing the line

and will not purposely conduct business in a way that meets the letter of the law while violating the spirit of the law.

3.2 Law and Ethics

3.2.1 Ethics

Technology makes it possible to do things that were never before possible. Unfortunately many of those things may be illegal, immoral, or unethical and still be easy to do. With the legal system far behind the growth of new business models there have been few generally accepted guidelines for many of the new business practices. The “wild-west” mentality that this freedom engendered has led some to question the ethics of e-Business. Technology allows both employees and consumers to be watched and profiled in ways never before imaginable. There are transgressions made by employees against the company such as using the Internet for personal transactions including objectionable uses such as pornography and harassment. There are transgressions that companies make against employees, such as invasion of privacy. There are also transgressions of companies against consumers through invasion of privacy, unauthorized data collection, price fixing, or sale of personal information. Lastly, there are simply the criminal uses of the Internet to steal, vandalize, and assault.

In many cases these difficulties came about because executives tried to make the company look more successful than it really was. There are many motivations for doing this: need to raise capital, trying to increase stock price, wanting to borrow capital from the banks, desire to earn performance bonuses, or even a need to hide other skullduggery. Here in Nigeria, the recent sack of MDs and executive directors of five banks as a result bank auditing by CBN revealed that they have been inflating earnings and hiding debt by creating subsidiaries that took on debt and paid sums to the parents that were shown as revenues. The results were inflated revenues and hidden debts. CBN reacted by taken a sudden distrust toward the five banks and soon many others banks may follow when audited. This delayed the recording of expenses by spreading them out over the coming years and thereby inflated earnings

The cloud of suspicion moved beyond the companies to those who provide audits, analysis, or research upon which investors rely. In some cases firms were found to have given positive public reports while privately downplaying their own research to selected customers.

Although these legal and ethical lapses were of monumental impact, this unit will focus on issues that pertain more primarily to Internet based businesses.

3.2.2 Security

If the Holiday season in December 1998 demonstrated the **viability** of e-Commerce, the events of February 8, 2000 and following days demonstrated the **vulnerability** of e-Business to security issues. A

coordinated and massive denial of service attack was launched against Yahoo, clogging the site with spurious requests for service and blocking service to others. It lasted for about two hours before Yahoo struggled back into service. It was probably not a coincidence that the world's largest independent web site was the first one targeted. The attack continued on the following day to other large e-Commerce retailers including Buy.com, eBay, Amazon.com and the CNN.com news site. By Wednesday the attackers moved on to the leading on-line brokerage E*Trade, technology news site ZDNet, and other sites. The damages ranged from blocked services to hours of site downtime.

For e-Commerce to be successful, there must be a reliable, available, scalable, and secure platform. These attacks graphically demonstrated that e-Commerce was still an immature business model based on a very new medium of communication. It also raised fears of a backlash against the commercialization of the Internet and a clash between the original internet culture that valued open, free, non-profit, and unregulated use of the internet and a business culture that saw this new communication system as an ideal way to buy and sell things and that valued security and reliability over openness and unfettered use. E-commerce is growing faster than the building blocks underneath the Internet, and we have to go back and take a look at them.”

The earlier concerns about security in e-Commerce related to the security of the personal and financial information that was being transferred across the network, stored in e-Business web servers, or even stored in “cookies” on the users own computers.

3.2.3 Privacy

As we have seen, it is possible for web sites to collect enormous quantities of data about those browsing their web sites. At first, web users felt anonymous, protected by screen names, the anonymity of indeterminate location, and a lack of identifying characteristics. Even when the vast quantities of data being collected by sites became clear, users often comforted themselves in the knowledge that there was probably just too much data to really be analyzed. But, technology moves very quickly as we have seen. Soon web enterprises could apply data mining tools to the data and begin to create profiles with information about the users. Many users even appreciated some of the side effects. Ad's could be presented that targeted specific users interests and avoided ads that would not be of interest. In the meantime the quantity of data available in “cookies” and site databases continued to grow.

People were often induced to give information freely in order to obtain more personalized service and more convenient on-line transactions. If they were willing to give information about themselves and their credit cards or banks, then users could take advantage of “single click”

purchases and personalized services. Millions took advantage of this through Amazon.com, Expedia.com, and many other e-Commerce sites.

Web advertisers suggest that consumers want the personalized marketing that can be made possible with the data now available. They suggest that consumers will willingly give up privacy in return for services and convenience. Privacy advocates counter those consumers are not really aware of the privacy that they are giving up and that if they fully understood they would be aghast! The privacy issue is likely to continue to be a major issue for the next few years.

Key elements of a privacy policy include both disclosure and options. E-Businesses are urged to disclose their privacy policies and then give the customer the right to “opt in” or “opt out” of data collection. There remains quite a bit of controversy over the selection of the default condition. “Opt out” privacy policies require the customer to make an active choice to “opt out” of the data collection. Data is collected by default unless the consumer makes that active choice to “opt out” Many privacy advocates urge the uniform adoption of “opt in” policies that do not collect data unless the consumer “opts in” by actively agreeing to have the data collection. The difference between these two policies is very important since most consumers tend to select the default condition, either by inattention or by intention.

Efforts by industry groups to create a technological solution have thus far received mixed reception. The World Wide Web Consortium (W3) has created a “Platform for Privacy Preferences Project” (P3P) over a three year period. The idea is to allow each consumer to describe his or her level of privacy need to the P3P Technology. Then, each time a consumer visits a web site a P3P agent will examine the privacy policy of the site as described through a standard method of tagging. If the site does not meet the standards set by the consumer, the P3P agent will warn the consumer. Some privacy advocates have criticized the standard as providing too little protection and too little recourse.

Privacy advocates see cookies as a key vulnerability of browsers and have tried to have them deleted as a standard part of browser operation.

Children’s Privacy

Most observers believe that e-Businesses will eventually be held to a higher standard of privacy protection for children. Privacy is also beginning to be an issue that becomes part of the positioning of an web based business.

Sites that fully disclose their privacy policies and rigorously follow those policies will fare better than those that do not. In that group, those that have the more protective policies are likely to be more attractive to consumers, but consumers do appear to be willing to trade off a bit of privacy for increased service if they can develop a basic level of trust in the e-Business.

3.2.4 Intellectual Property

If the grand traditions of communal ownership remain alive today, they remain alive in a portion of the Internet community. There is a vocal segment of the community that rejects private ownership of intellectual property. This can be seen in Richard Stallman's free software initiative and in the legal situation encountered by Napster which developed a technology for allowing fans to exchange, usually illegal, copies of MP3 encoded digital music. When the rock group Metallica, as a representative of the music industry, sued Napster for illegally appropriating its music and facilitating its distribution over the Internet, the free stuff movement began an indignant protest. "Method Madness: The battle over e-commerce patents heats up,"

3.2.5 Antitrust

The e-Business revolution has resurrected a moribund Antitrust division at the department of Justice. The Microsoft case has raised new issues and is testing new theories of anti trust in the new economy. While the antitrust cases of the middle of the 20th century focused on market domination leading to decreased competition and in turn leading to higher prices, the Microsoft case focused on monopoly as a hindrance to innovation. Little in the Microsoft case pointed toward consumers paying higher prices. So where was the consumer harm? According to the Justice department case, Microsoft's monopoly in operating systems allowed them to wield that power to stifle competitive innovation.

There was general agreement in the legal community that innovation was the right focus, but there was a significant divergence of opinion on whether monopolies lead to less innovation. One school of thought felt that it led to more not less.

Although many think that monopolies, in and of themselves, are harmful to consumers and lead to higher prices, research and legal theory does not support this popular view. Monopolies can instead lead to **lower** prices and **increased** innovation. Harvard economist Joseph Schumpeter maintained that a monopoly might increase innovation because they had little to fear from the market place. They could take risks that less protected companies could not afford. Innovations are often expensive to develop and more expensive to deploy. Monopolies have much more assurance that their investment may be recovered before a competitor matched their new products without having to stand the expense of the research and development. In highly competitive markets, it might be hard to maintain the exclusivity required in order for the innovative product to pay off the development expenses.

Thus an antitrust case needs to demonstrate both that a monopoly exists and that it has been used illegally to either drive up prices or (in the new economy theory) stifle innovation. Evidence suggests loudly that the government should leave this sector alone.

3.2.6 Price Fixing

Antitrust also recognizes that organizations that do not have a monopoly themselves can band together to create a de-facto monopoly to fix prices. The OPEC oil cartel is an example of a collection of organizations, in this case governments, who have banded together to fix the price of a good, oil. The fact that this is a collection of governments has put the OPEC cartel out of the reach of antitrust law from both a legal and political standpoint.

The creation of e-Business portals has put the price fixing issue squarely before the Justice department in an entirely new context. For example, General Motors, Ford, and Daimler Chrysler could band together to form a B2B portal to enable them to acquire parts and supplies from the many suppliers to the three organizations. Their suppliers could be nervous and thus engage in an anti-trust debate. Competitors, such as travel agents, Expedia.com and Travelocity fear that the new site could be used to freeze them out of the business. Consumer groups worry that the airlines could work together to raise prices and avoid competition. The Justice Department views the airline industry as one in which there is a prior history of anti-competitive behavior and significant potential for mischief in the new portal.

As more and more industries develop, industry specific portals, there may be more and more opportunities for illegal collusion on prices and other kinds of anti-competitive behavior. In the meantime, e-Business would be well advised to exercise some caution in their participation in industry wide portals.

3.3 Globalism in e-Business

The Internet is the only uniform communication mechanism across the globe. Different countries use different languages, telephone standards, and television systems, but the Internet protocol (IP) is the same worldwide. One of the favorite cartoons of the early internet era showed two dogs sitting at a computer while one remarked to the other: “on the internet, no one knows that you are a dog.” On the internet, no one has to know your species, location, race, gender, or any other characteristic irrelevant to the transaction.

The ubiquity and speed of the internet means that an Asian company can have the same access to a New York customer as a New York company. Enterprises that require extensive customer support operations can take advantage of the globalization in several different ways. For example, an English speaker who contacts United Airlines in the Netherlands can be (and often is) redirected to service agents in the United Kingdom if the Netherlands agents are busy. For very specialized engineering support, callers may be routed to wherever that support is available at a particular time, making it easier to provide 24 hours support for a variety of products. For example, customers seeking support from Gilat

Communications-Mentergy for the corporate training software and hardware systems may be routed to Falls Church, Virginia or Tel Aviv Israel for support of satellite based systems, Troy, NY for support of internet based systems, and Salt Lake City Utah for support for content and tools. If the New York Office is closed, then one of the other offices may step forward to handle the support need.

Workforce – Off shore programming, Indian programmers, Taiwanese design houses, IT waivers for immigration. Technology Ukraine. World Trade organization and the China entry. European Economic Union.

4.0 Summary

The global regulatory environment places a strong demand on companies to know the rules and regulations that apply to e-marketing. There are two types of regulations: self-regulation which involves companies voluntarily obeying rules set up by the industry and governmental regulations which are laws put into place to protect the consumers when self-regulation fails. There are many marketing organizations that have published guidelines on ethical behavior in the hopes that self-regulation will be effective and avoid the need for governmental regulations. An example of a code of ethics was created for a hypothetical company called All Rights E-Marketing. This code of ethics covered a variety of topics with guidelines on how business should be conducted.

5.0 Conclusion

Government regulations are laws put in place that provide penalties for companies that break the laws. These governmental regulations are put in place when self-regulation of an industry does not prove effective in protecting the rights of consumers. In the world of e-marketing, companies can face a daunting challenge in keeping track of all the federal, state, and local regulations that might be in place.

6.0 Teacher Marked Assignment

Distinguish between the terms: Code of Ethics, Code of Conduct, Ethical Issues and Ethical Behaviours.

7.0 References/Further Reading:

<http://www.the-dma.org>

<http://www.ftc.gov>

<http://www.wipo.org>

<http://www.nsfre.org>

<http://www.dictionary.com>

Glossary

24x7 An availability requirement meaning 24 hours per day, 7 days per week, with few or no exceptions.

Active Server Pages A dynamic Web page, with the extension .ASP, created with Visual Basic Script or JavaScript. It displays information as a part of the HTML.

Application Programming Interface (API) A predefined set of program subroutine calls that allows one program to communicate with another without either knowing how the other does its job.

Application Server Mediates between the Web and business applications (for example, WebSphere Application Server Standard Edition). It is a set of routines or software that allow the user to run server side applications, such as servlets, JavaServer Pages and Enterprise JavaBeans. These applications can serve as a link to the existing “legacy” applications or database information.

Bandwidth - The capacity of an electronic line, such as a communications network or computer channel, to transmit bits per second (bps).

Bitmap - A representation, consisting of rows and columns of dots, of a graphics image in computer memory. The value of each dot (whether it is filled in or not) is stored in one or more bits of data. For simple monochrome images, one bit is sufficient to represent each dot, but for colors and shades of gray, each dot requires more than one bit of data.

[Seemoregraphicsformats](#)

Bits and bytes - *Bit* stands for binary digit: 0 or 1

A *byte* is made up of 8 bits

It takes 1 *byte* to store *one ASCII* character *ASCII* stands for the American Standard Code for Information Interchange

The combination of bits (which makes up one byte) below represents the letters below

A 0100 0001

B 0100 0010

C 0100 0011

K stands for kilo and = 1024 (2 to the tenth power)

M stands for mega. A MB, megabyte is about a million bytes (1024x1024)

G stands for giga. A GB, gigabyte is about a billion bytes (1024x1024x1024)

T stands for tera. A TB, terabyte is about a trillion!

RAM is usually measured in *MB*

Hard disk spaces is usually measured in *gigabytes*

Blog - A [blog](#) is information that is instantly published to a Web site. Blog scripting allows someone to automatically post information to a Web site. The information first goes to a blogger Web site. Then the information is automatically inserted into a template tailored for your Web site.

Bookmark - a way of storing your favorite sites on the Internet.

Browsers like Netscape or Internet Explorer let you to categorize your bookmarks into folders.

Boolean logic - a type of logic (using **AND, OR, NOT** operators, for example) used by search engines to find information on the Internet and in electronic databases. (For example, to find computer viruses instead of human viruses, you might try the keywords "computers and viruses.")

Browser - A software program that allows users to access the Internet.

Examples:

Non-graphical a user interface for computers which allows you to read plain text, not pictures, sound, or video, on the Internet. It is strictly text based, non-Windows, and does not place high memory demands on your computer. An example is **lynx** (<http://lynx.browser.org/>)

Cascading Style Sheet (CSS) A method that describes the format, style, or look of a marked-up document (for example, a document that uses a markup language to describe its contents).

Graphical a user interface for computers which enables people to see color, graphics, and hear sound and see video, available on Internet sites. These features are usually designated by underlined text, a change of color, or other distinguishing feature; sometimes the link is not obvious, for example, a picture with no designated characteristic. Examples are **Netscape** and **Internet Explorer**.

CGI (Common Gateway Interface script) - a specification for transferring information between a Web server and a CGI program, designed to receive and return data. The script can use a variety of languages such as C, Perl, Java, or Visual Basic. Many html pages that contain forms use a cgi program to process the data submitted by users/clients.

Chat - real-time, synchronous, text-based communication via computer.

Cookie - Information (in this case URLs, Web addresses) created by a Web server and stored on a user's computer. This information lets Web sites the user visits to keep of a user's browsing patterns and preferences. People can set up their browsers to accept or not accept cookies. **cookies** Bits of information that a Web site gives to a client's browser. Anytime the client browser requests that site, the site can retrieve the cookie and customize the pages for the client.

Cyberculture - "a collection of cultures and cultural products that exist on and/or are made possible by the Internet, along with the stories told about these cultures and cultural products." David Silver, *"Introducing Cyberculture,"* Resource Center for Cyberculture Studies:
<http://www.com.washington.edu/rccs/> .

Customer Relationship Management Involves supporting, developing, and retaining profitable customers by using e-Business technology.

Central Processing Unit (CPU) The part of a computer that includes the circuits that control the interpreting and running of instructions.

cryptography The transformation of data to conceal its information content, prevent its undetected modification, or prevent its unauthorized use.

Dynamic Host Configuration Protocol (DHCP) The protocol that allows a networked computer to get its networking configuration from a server on the network.

Digital Certificates In computer security, a digital document that binds a public key to the identity of the certificate owner, and therefore, enables the certificate owner to be authenticated. A certificate authority issues a certificate.

Domain Name Service (DNS) A network service protocol that provides a domain name (such as www.as400.ibm.com) to IP address (such as 192.27.22.20) mapping.

Document Type Definition (DTD) A method of defining the tags used in a markup language such as XML or SGML.

e-Business A business process transformed to leverage the World Wide Web (Internet, intranet, and extranet) technology for business benefit.

e-Business cycle Provides companies a blueprint for how to move through each phase when creating and deploying applications and

providing support for e-Business initiatives. Its steps are: build, leverage, run, and transform.

e-commerce Selling products and services on the Internet.

Enterprise JavaBeans (EJB) A specification of Sun Microsystems, Incorporated, that is part of the WebSphere Application Server Advanced Edition. EJB support allows your application to include sophisticated business components that run on your server. These components may include business logic with automatic distributed transactions and persistence to a relational database.

extranet An intranet whose access for traveling employees or privileged customers and suppliers is partially allowed through a firewall to the Internet.

FAQs - Frequently Asked Questions. A list of questions and answers to explain products and troubleshoot problems.

Firewall - The name "firewall" derives from the term for a barrier that prevents fires from spreading. A computer "firewall" is a barrier between your computer and the outside world. Just like a fire is most likely to

spread through open doors in a building, your computer is most vulnerable at its ports (the doors). Without ports you could not go on the Internet or let Internet traffic enter your computer. A special type of network router that connects two networks but only allows controlled traffic between the two. For example, it allows employees on their intranet to gain access to the Internet but block all access from the Internet in.

An effective software firewall isolates your computer from the Internet using a code that sets up a blockade to inspect each packet of data, from or to your computer — to determine whether it should be allowed to pass or be blocked.

Firewall software operates in various ways: Packet filters block traffic from IP addresses and/or port numbers. Proxy servers can break the connection between two networks. NATs (Network Address Translators) hides the IP addresses of client stations by presenting one IP address to the "outside" world. Stateful inspection verifies inbound and outbound traffic to be sure the destination and the source are correct. Firewall software can allow your computer to operate in stealth mode, so that its IP address is not visible.

Flash - Animation software used to develop interactive graphics for Web sites as well as desktop presentations and games (Windows and Mac) by the company Macromedia. Flash on the Web is displayed by a browser plug-in. Non-Web presentations are run by a Flash player, included on a floppy or CD-ROM. Flash can be used to create vector-

based graphics in one or more timelines that provide a sequential path for actions.

FTP - Using file transfer protocol software to receive from upload) or send to (download) files (text, pictures, spreadsheets, etc.) from one computer/server to another. In TCP/IP, an application protocol used for transferring files to and from host computers. FTP requires a user ID and possibly a password to allow access to files on a remote host system. FTP assumes that the Transmission Control Protocol is the underlying protocol.

HyperText Markup Language (HTML) A document formatting language in which a specific set of *tags* describe the contents of a Web page, including the headings, bold and italic text, included images, and hypertext links. A type of text code in Hypertext Markup Language which, when embedded in a document, allows that document to be read and distributed across the Internet.

HyperText Transport Protocol (HTTP) The protocol that defines how a Web client interacts with a Web server, requesting and receiving Web pages. The hypertext transfer protocol (http) that enables html documents to be read on the Internet

HTTP server A server that “serves” Web pages to client browsers over HTTP. **.gif** - (graphic interchange format) the usual format for a graphic that is not a photo. Animated gif files are embedded with coding that creates movement when the graphic is activated. [Seemoregraphics formats](#)

Home page - Generally the first page retrieved when accessing a Web site. Usually a "home" page acts as the starting point for a user to access information on the site. The "home" page usually has some type of table of contents for the rest of the site information or other materials. When creating Web pages, the "home" page has the filename "index.html," which is the default name. The "index" page automatically opens up as the "home" page.

Hypertext - Text that is non-sequential, produced by writing in HTML (HyperText Markup Language) language. This HTML coding allows the information (text, graphics, sound, video) to be accessed using HTTP (Hypertext Transfer Protocol).

Hyperlink - Text, images, graphics that, when clicked with a mouse (or activated by keystrokes) will connect the user to a new Web site. The link is usually obvious, such as underlined text or a "button" of some type, but not always.

IBM International Business Machines.

Instant Messaging (IM) - a text-based computer conference over the Internet between two or more people who must be online at the same time. When you send an IM the receiver is instantly notified that she/he has a message.

Internet A collection of interconnected LANs and WANs that use the Internet Protocol (IP) to route traffic within it. The “official” global IP network. A global network of thousands of computer networks linked by data lines and wireless systems.

[Background history on the Internet -The Internet, originally the ARPAnet (Advanced Research Projects Agency network), began as a military computer network in 1969. Other government agencies and universities created internal networks based on the ARPAnet model. The catalyst for the Internet today was provided by the National Science Foundation (NSF). Rather than have a physical communications connection from each institution to a supercomputing center, the NSF began a "chain" of connections in which institutions would be connected to their "neighbor" computing centers, which all tied into central supercomputing centers. This beginning expanded to a global network of computer networks, which allows computers all over the world to communicate with one another and share information stored at various computer "servers," either on a local computer or a computer located anywhere in the world. The Internet is not governed by any official body, but there are organizations which work to make the Internet more accessible and useful.]

Interlaced - A graphics formatting technique that causes an image to gradually appear on your screen instead of appearing all at once. The image appears blurry at first and is replaced by successive waves of bit streams that gradually fill in the missing lines until the image fully appears in full resolution. This gradually rendering of the image is helpful for Web users who have slow modems and connections, since this technique allows the viewer to see enough of the image to decide whether or not to continue loading it. For fast connections, there is no discernible difference.

IP Address - (Internet Protocol) The number or name of the computer from which you send and receive information on the Internet.

Intranet An “Internet” and the computers and services available on that network whose access is limited to a particular company or organization. If connected to the Internet, it is usually through a firewall.

Internet Protocol (IP) The protocol that provides for the passing of packets of data between LANs, forming an inter-network of LANs known as an Internet.

ITSO International Technical Support Organization.

Java An object-oriented programming language for portable interpretive code that supports interaction among remote objects. Java was developed and specified by Sun Microsystems, Incorporated. - a computer language, developed by Sun Microsystems, that lets you encode applications, such as animated objects or computer programs, on the Internet

JavaScript An interpreted programming or scripting language. A Web scripting language developed by Netscape. It was developed independently of the full JAVA language and is an "open" language, free for anyone to use and adapt. For example, [The Java Script Source](#) has many scripts people can adapt for their own purposes.

.jpg (or jpeg)- (joint photographic expert group) a file format for photographs on Web pages. The "jpg" format compresses large photo files so they don't take up as many kilobytes of memory. [Seemore graphicsformats](#)

JavaServer Pages Pertaining to the Sun Microsystems, Inc., technology that allows dynamic content to be inserted into an HTML page before the HTTP server sends the page back to the browser for display. These pages have a .jsp extension that signals the HTTP process to call the WebSphere Application Server to handle the embedded Java code (known as a scriptlet) or to refer to a JavaBean.

Java Virtual Machine (JVM) The part of the Java environment that is responsible for interpreting the Java codes.

Local Area Network (LAN) A network that allows a number of computers to transmit data between each other directly, usually between any pair of computers but occasionally from one computer to all others on the local network.

Lightweight Directory Access Protocol (LDAP) A network service protocol that allows simple directory-type information (such as names and addresses) to be looked up in an easy and efficient manner.

Listserv - An e-mail list of e-mail addresses of people with common interests. Software enables people who belong to a list to send messages to the group without typing a series of addresses into the message header. Usually members of the group in the listserv have to subscribe to the mailing list.

Newsgroup - An Internet "site" centered around a specific topic or course. Some newsreader software can "thread" discussion so there can be various topics centered around a central theme. An advantage over e-mail is that the messages are archived and don't reside in your e-mail account, taking up your memory, unless you set up a "sent mail" or "carbon copy" option. The messages can often be threaded according to a particular discussion

Modem - A device that connects your computer to the Internet, when you are not connected via a LAN (local area network, such as at work or on a campus.) Most people connect to a modem when using a home computer. The modem translates computer signals to analog signals which are sent via phone lines. The telephone "speaks" to the computer/server which provides your Internet access.

MPEG - (Short for: **M**oving **P**icture **E**xperts **G**roup)

MPEG-1 - Format for compressing video with audio for playback from storage media with low data transfer rates such as CDRoms or over the network at VHS quality.

MPEG-2 - Format for compressing video with audio at broadcast quality resolution for playback in higher data transfer rate environments. Usually used for real-time encoding in the professional market, satellite digital television (DirecTV, USSB), and for DVDs and other types of video CDs.

MP3 - Format for compressing audio only defined in both **MPEG Layer 3** MPEG-1 and MPEG-2. Commonly used for digital music played on personal computers (MP3 songs) but also targeted at applications such as digital phones and new hardware MP3 players intended as discman or car CD player replacements.

Multimedia - The Web's integration of audio, video, graphics and text.

PHP - (*Hypertext Preprocessor*) open source, server-side HTML scripting language used to create dynamic Web pages. PHP is embedded within tags, so the author author can move between HTML and PHP instead of using large amounts of code. Because PHP is executed on the server, the viewer cannot see the code. PHP can perform the same tasks as a CGI program can do and is compatible with many different kinds of databases.

Portal - A Web site "gateway" that provides multiple services, which could include Web searching capability, news, free-email, discussion groups, online shopping, references and other services. A more recent trend is to use the same term for sites that offer services to customers of particular industries, such as a Web-based bank "portal," on which customers can access their checking, savings and investment accounts.

protocol A set of rules to be followed for some sort of communication. At low levels, it may be definitions of voltage levels on wire and physical cabling, while at high levels it may be the sending of text greetings and responses that establish a conversation.

public key encryption In secure communication, an algorithmic pattern used to decrypt messages that were encrypted by the corresponding private key. A public key is also used to encrypt messages that can be decrypted only by the corresponding private key. Users broadcast their public keys to everyone with whom they must exchange encrypted messages.

router A network device that connects two or more LANs or WANs together to form an Internet.

RSS - (Rich Site Summary or RDF [*Resource Description Framework*] Site Summary). An XML format for sharing content among different Web sites such as news items. **How does it work?** A Web site can allow other sites to publish some of its content by creating an RSS document and registers the document with an RSS publisher. A web publisher can post a link to the rss feed so users can read the distributed content on his/her site. Syndicated content can include news feeds, listings of events, stories, headlines, etc.

Search Engine - specialized software, such as AltaVista and Yahoo, that lets WWW browser users search for information on the Web by using keywords, phrases, and boolean logic. Different search engines have different ways of categorizing and indexing information. Search engines are accessed by typing in the URL of that engine or using a browser's compilation of search engines in its Internet search function.

Shockwave - A three dimensional (3D) animation technology/format created by the Macromedia company. Macromedia Director produces Shockwave files, which can be viewed through a Shockwave player, a

browser "plug-in" computer program or other multimedia applications that access the player. Shockwave can be used to create more sophisticated animations than the Macromedia Flash format. Shockwave uses the .dir file extension for source files and .dcr extension for Shockwave "movies."

Telnet - The command to log on to another computer on the Internet.

URL - A universal resource locator (a computer address) that identifies the location and type of resource on the Web. A URL generally starts with "http."

Vector - A line in computer graphics designated by its end points (x-y or x-y-z coordinates). A vector layer does not use pixels for storing image information. Instead, it stores a vector object as a set of properties that describe its attributes, dimensions, and position in the image. Each time an image is opened, these properties are used as instructions for drawing the objects. Because the objects are independent elements, you can move them without affecting the rest of the image. [VirtualCommunity](#) - a term commonly used to describe a group of people who exchange ideas through computer networks, listservs, newsgroups, and Web-based bulletin boards. They might not ever meet face-to-face. Generally these people meet over the long-term, on a regular basis, and share their ideas about a variety of subjects, depending upon their special interest. The discussions could relate to hobbies, music, health, self help issues, and professional and scholarly activities.

Virus - a computer program usually hidden in an existing program. Once the existing program is executed, the virus program is activated and can attach itself to other programs or files. Viruses can range from benign activities such as attaching a harmless message to performing malicious activities such as destroying all the data on a computer hard drive. Viruses are commonly distributed as e-mail attachments which activate when the attachment is opened. Virus protection software, updated regularly with the latest virus definitions, can help protect computers from viruses.

Secure Sockets Layer (SSL) A protocol with which you can establish secure connections between server applications and their clients. SSL has become an industry standard for securing communication between clients and servers.

servlets A Java-based alternative to CGI, running on the server in response to some action by the user such as clicking on a link.

SET Secure Electronic Transaction A specification for securing payment card transactions over open networks such as the Internet. SET

was developed by Visa, MasterCard, IBM, and other technology companies.

Simple Mail Transport Protocol (SMTP) The protocol that allows text messages (e-mail) to be stored and forwarded from the sender to the receiver.

Standard Generalized Markup Language (SGML) A document formatting language in which *tags* that are extensible and defined within a DTD, describe the content of a document. It is older and more generalized than XML.

tags Sequences of text in a document that are not normally meant to be seen by the reader but rather provide instructions to the application displaying the document on how to display it.

Transmission Control Protocol (TCP) The protocol that provides for the sending of a stream of data from one process on one computer to another process on another computer over packet-based network protocols such as IP. Takes care of breaking the stream into packets, reassembling them in order, and retransmitting packets that are lost or corrupted.

Transaction Server An extension of the application server. A transaction server is required when a customer wants to extend e-Business across the entire spectrum of business processes to encompass transaction processing and running the actual state of the business.

Universal Resource Locator (URL) The address of information on the World Wide Web. It is the fully-qualified domain name of a Web site.

Web Bot - A term that applies to programs/applets (macros and intelligent agents) used on the Internet. Such bots perform a repetitive function, such as posting messages to multiple newsgroups or doing searches for information.

Web page Any document that can be accessed by a URL on the World Wide Web.

Web presence A Web site on the World Wide Web. Also the first phase in the e-Business phases of adoption.

Web server An HTTP server that “serves” files to a Web browser on a client machine.

Web site A collection of Web pages that resides on a Web server that is managed by a single entity (an organization or an individual). Each Web site has a home page and a URL.

Wide World Web (WWW) - A hypermedia information storage system which links computer-based resources around the world. Computer programs called Browsers enable words or icons called hyperlinks to display, text, video, graphics and sound on a computer screen. The source of the material is at a different location - a different file in the same directory, a file in another computer, which can be located anywhere in the world. A network of servers that contain programs and files. It displays specially formatted files that can be hyperlinked to other files throughout the Internet.

WORM - A destructive computer program that replicates itself throughout your computer's hard drive and memory. Worms use up the computers resources and pull the system down. Worms can be spread in mass-e-mailing if the user opens an attachment.

(2) A program that moves through a network and deposits information at each node for diagnostic purposes or causes idle computers to share some of the processing workload

eXtensible Markup Language (XML) A document formatting language in which *tags* that are extensible and defined within a DTD, describe the content of a document while the look is defined within CSSs. It is a newer subset of SGML that is easier to work with.

XML (Extensible Markup Language) - is a less robust variety of SGML, a system for organizing and tagging elements of a document so that the document can be transmitted and interpreted between applications and organizations. Human readable XML tags defines "what it is," and HTML defines "how it looks." XML allows designers to create their own tags. For example:

HTML

```
<font size="2">Jane Doe</font>
<b>March 27, 1975</b>
```

XML

```
<firstName>Jane</firstName>
<lastName>Doe</lastName>
<dateBirth>03-27-75</dateBirth>
```

In the HTML version the tags identify formatting options, such as font size and bold. In the XML example, the tags identify the content.

Because XML can support business-to-business transactions by making the transmission and interpretation of data easier, it has the potential to become the standard for the exchange of data over the Internet.

