**Session Selection and Use of Enterprise Resource Planning Systems in Organizations:**

4 Software phases in a company:

1. Functional software without any database
2. Functional Software with individual database
3. Functional software with shared database
4. Enterprise software with shared database

Shared database creates a misunderstanding within a company since every decision by different department has an impact towards other departments.

Limitations Software Modules with Shared Database Systems:

* The firm’s financial, business, accounting inherent **processes** and rules are not integrated.
* Data changes in the database may not be automatically clear for other functional areas.
* Potential conflict could be created, or one change will override the other.
* Changes may be ignored or recognized too late.
* Each functional software has a single inherent process.

Enterprise systems implementation with Database Integration:

* Firm’s financial, business, accounting inherent processes and rules are integrated.
* Data changes are estimated in real-time (making it clear).
* Potential conflicts is prevented (action denials).
* Changes trigger an alert for employees.
* Multiple inherent processes for each business activities.

Inherent Business Processes is the internal business code that is created in a software that determines tasks.

Integrated systems such as ERPs have multiple business process.

Example: for Fastfit ordering from suppliers, an ERP would offer business processes for HQ ordering, for warehouse ordering and for store ordering of goods.

Functional software provide business process for doing one procedure.

Example: for Fastfit ordering from suppliers, a functional software would offer a business process for EITHER HQ ordering, OR warehouse ordering OR Store ordering of goods.

Enterprise Resource Planning (ERP):

Set of complex software modules designed to integrate all business processes of an organizations major functional areas.

Goal: Increase responsiveness, visibility, process efficiency, profitability and customer satisfaction.

Attributes of ERP software:

* ERP-Systems are created for each industry like automotive, airlines, healthcare and many more.
* Built with pre-designed business processes that reflect best for specific industries.
* Multiple inherent processes in ERP software.

ERP process supported by ERP modules:

* Financial and accounting
* Human resources
* Manufacturing and production
* Sales and Marketing

There 3 different tiers of ERPs:

Tier 1:

* Large number of inherent business processes.
* Large firms could configure the inherent processes according to their needs.
* No limit on number of employees using it.
* Higher implementation costs and longer deployment time.
* All modules of a business are provided.

Tier 2 & 3:

* Limited number of available inherent business processes.
* Most inherent business processes are unconfigurable.
* Designed to meet the needs of large to medium sized firms.
* Lower implementation cost and shorter deployment time.
* Limited number of modules.

All application modules like Finance, Production and Marketing department have a single database.

**Customer Relationship Management (CRM) and Marketing Automation Software (MAS)**

ERP is focused around internal business processes not customer processes:

* Meaningful data about customer interactions are not captured by ERP.
* ERP not designed to capture channel interactions like Call Center Interactions.
* Opportunities to serve customers better is lost.

Alternate name for CRM: Sales Automation Software

Purpose of CRM: Support the set of business processes to attract, sell, manage and support customers.

Goal: Increase revenue, profitability and customer loyalty.

CRM Approach:

* Manage customer life cycle and customer interactions in all media or channels like telephone, web and many more.
* Tightly integrating sales, marketing and support information systems.
* To have an integrated solution across all information systems.

Focus of Sales Software:

* Set sales goals by region, product category, product and or retail outlet.
* Set sales goals by week, month, quarter and year.
* How many sales did we make for each product.
* Who or which group made which sales.
* Who gets what level of commissions.
* Aggregate sales by region.
* Aggregate and report sales by week.
* Compare sales goals achievement by week, month, quarter or year.

Focus of CRM software:

CRM has the same focus as Sales Software, however it also focuses on past and current situation as well as responding to leads.

It also forecasts future sales by recognizing sales opportunities.

CRM is more likely to have more accurate prediction of sales, higher sales growth, better customer management and higher success rate for sales staff

Important Points about the relationship of CRM with ERP:

* CRM is not for every function in an organization nor the solution for every issue.
* CRM has its own database and not created to work with ERP software.
* CRM does not replace ERP sales and marketing software, however a firm could use CRM to manage its sales activities and import it into ERP sales.

Benefits of CRM Software:

* Knows the position of customers in sales process and help to close deals.
* Create targeted promotional material to lead to a sale and build good faith with customers.
* Enable to monitor target activities of social media portals.
* CRM trigger internal alerts to know customer events and activities management like Client’s birthday, account renewal and many more.

Software Deployment Models:

* On-Premise: Greatest control and own software & hardware
* Hosted: Own the software and rents hardware
* Public Cloud: Owned and remotely hosted vendor, shared resources.
* Private Cloud: Owned and remotely hosted vendor, ability to dedicate resources.

Salesforce Approach (SAAS):

All Firms:

* Share one implementation of the software.
* Use software via browser.
* Share same database server.
* Share applications server and tech infrastructure

Cloud Provider:

* Responsible for data security.
* Responsible for hardware upgrades.
* Responsible for software upgrades.
* Responsible for data backups.

Marketing Automation Systems (MAS)

Purpose of MAS: Provide business processes for supporting workflows used to interact, nurture, manage and transform raw leads into qualified potential customers.

Goal: Increase revenue, profitability and customer loyalty.

Benefits of Marketing Automation Systems (MAS):

* Enables to segment prospects into mailing list based on interests and preferences.
* Enables to automatically send triggered emails considering product or service.
* Track and capture customer interaction with marketing emails.
* Sync CRM and MAS information.

Contrast between CRM and MAS:

* CRM improve selling of product and support to existing customer.
* MAS improve effectiveness of marketing workflows and marketing performance to raw leads.

**Internet Infrastructure and Web Servers**

***Internet*** is a network of networks consisting of over 150 million web *servers*, in addition to ftp *servers*, gopher *servers* and billions of client computers that log on to these servers.

Every computer server has to operate on the Internet has to be assigned Unique IP Number that is mapped to the server’s registered Domain Name.

Static IP address: IP addresses of each server is unique and does not change.

Dynamic IP address: The IP addresses for laptops, smart phones and other devices assigned when the device connects to the internet.

Private IP addresses only used on Local Area Networks.

Public IP addresses used for assets that on the internet that are acquired from legitimate Internet Domain Name Registrar.

Internet Infrastructure Servers: Servers which the Internet network needs to function efficiently that enable traffic to be passes.

Example: Domain Name Servers, Internet Service Providers Serves.

Internet Services Servers: Servers which provide something for the end consumer.

Example: E-commerce servers, Web application servers, e-mail servers.

Internet Infrastructure Servers:

Network Access Providers Servers: Handle connection to the Internet Backbone

Internet Service Providers (ISP) Servers: Handle connections to the internet

Domain Name Servers: Manage Domain Name Processing

Software protocol:

* Browser use Hypertext Transfer Protocol (HTTP)
* Software for creating emails use Simple Mail Transfer Protocol (SMTP)
* Websites that exchange files use File Transfer Protocol (FIP)

Transferring Information on the Internet:

* Transfer packets on the Internet is called Internet Protocol (IP)
* Transform information into data packets is called Transmission Control Protocol (TCP)
* Phone calls over the Internet use Voice Over Internet Protocol (VOIP)

Intranets:

An Intranet is a LAN that uses Internet protocols and web technologies to provide access to Internet-based business applications.

Intended to permit controlled access to employees.

Extranet:  
An Extraner is an Intranet that has been technologically extended to allow controlled access to particular applications to users outside the company for example to partners, vendors and suppliers.

**E-Commerce**

Electronic Data Interchange (EDI systems): Advent of computer networks created the opportunity for documents to be exchanged electronically.

* Each partner buys and installs hardware and software that enables business documents to be exchanged.
* Each partner register with network provider.
* Each side agrees on which data or documents that would be exchanged.
* Each side agrees on standard format of data/documents.

EDI systems: Transfer electronic business documents such as Purchase Orders, Invoices, Advanced Shipping Notices.

E-commerce is the deployment of part or most of an organization’s offline commercial activities on the Internet Network. (NOT JUST BUYING AND SELLING)

E-commerce application providers: provide software applications, web software, security software and databases for the purchase and sale of goods.

E-commerce technology infrastructure: provider provide routers, storages, servers, data centers, hardware and network which enable e-commerce.

E-commerce support services provider: offer technical support services for software and hardware assets and infrastructure.

**E-Commerce Models**

Covisint.com: B2B

Ebay.com: C2C

Monster.com: C2B

Amazon.com: B2C

Disintermediation, eliminates the middle layers in the supply chain.

Risk of E-Commerce:

* Channel Conflict: Offering of a service on one channel draws away customers from using other channel.
* Price Conflict: Occurs when the price set for a product on one channel result in a loss on other channels.

**E-commerce Technologies**

Three Tier Web Architecture

Tier 1: A browser is a program that is used to interact with web servers on the internet

Tier 2: Web server holds all web pages that could be accessed.

Tier 2: A commerce server is the set of web-based programs that enable online ordering.

Tier 3: Database that holds all data and information.

Browser: Communicates with a webserver with HTTP and displays it through HTML.

Web Cookies:

* Cookies are text files that a webserver creates and saves on your device.
* Every server visited will create cookie text file.
* Cookie file can only be read and updated by web server.
* It contains preferences data that can be used to serve advertisement online.

**Business Intelligence Systems (Reporting Systems and Data warehouses)**

Organizational Realities:

* Information is stored in a different software system
* Computers being used are outdated legacy systems
* Different systems were not integrated
* Mergers and acquisitions have made hardware and software systems complex

Types of Decisions:

* Unstructured Decision (Top Management Decisions):

The decision is not Routine and does not have an agreed procedure for resolution.

* Semi-structured Decision (Middle Management Decision):

The decision is partly routine and partly unique.

* Structured Decision (Lower Management):

The decision is routine and occurs frequently.

Data Warehouse are special databases that are used to manage, prepare, consolidate and store data that were extracted from other sources and intended specifically for the purposes of data mining and data analyses.

Data Mart is a subset of an organizational data sore, usually oriented to a specific purpose. Data marts are designed to focus on specific business functions or for a specific community within an organization.

Types of Business Intelligence Software:

* Reporting Systems
* OLAP Systems
* Data Mining Systems

Online Analytical Processing (OLAP) software builds on the usually components and functions of a reporting system.

OLAP reports are dynamic and user can interact with the report to drill down the data hierarchy.

OLAP cube:

* OLAP report
* Users can alter format
* Users can drill down into data

OLAP report has measures and dimensions:

Dimensions is the business category like Product, Customer, Sales region and many more.

Measure is the attribute of a dimension.

Reporting Systems and OLAP System is to assess.

Data Mining Systems is used to predict.

Business Intelligence (BI):

Business Intelligence systems are software products that enable firms to transform operational data and to reveal meaningful, but hidden patterns and relationships within data.

Analytic Tools: process data using techniques which are sophisticated and mathematically complex.

Data Mining involves using BI tools to search for patterns and relationships within data.

Unsupervised Data Mining: Application analyses to data and observing the results thereafter.

Supervised Data Mining: Application of analyses in which the data analyst uses his knowledge to influence what model to be used for the analyses.

**Porter’s Five Forces:**

The model was developed to enable organizations to asses threats to their competitive industrial market position in an industry.

