TM 50, BIS, LECTURE # 3 (7/6/17)

Agenda:

1. Evolution of IT
2. Quick review of L # 2
3. Acheiving Operational Effectiveness (reducing costs) & Supplier & Customer Intimacy (Increasing Sales Revenue)

   Profit = Sales Revenue — Costs

4. E-commerce
5. Project feedback.
6. HW # 2 (Thursday) & Project Phase 1 assignment (Tuesday with Wednesday project reviews)

1. Evolution of IT

There are 5 eras of traditional IT evolution from ≈1950 – ≈2005

Era	Time period
1. Electronic Accounting Era specialized machines to sort time-cards, accumulating totals, ... programs were hard-wired into circuit boards	1930s – 1950s
2. General purpose mainframe & mini-computers -UNIVAC -IBM 700 } early IBM 360: Time-sharing, multi-tasking 1959 - first airline reservation system IBM leader since 1965 ($27B sales in 2004)	1959 – present Data processing era (financials, operations, ...)

Era	Time-Period
(3) Personal Computer Era - first PC in 1970 (Xerox Alta; Apple I, II) - IBM PC (1981): birth of the PC Era	1981 – present
(4) Client-Server era (using Local Area Networks [LAN]) Distributed computing work a number of smaller inexpensive machines (servers) that cost a lot less than mainframes & mini-computers	1983 – present Early enterprise computing
(5) Enterprise Internet computing era Integrate disparate networks of computers and applications throughout the enterprise using an enterprise-wide IT infrastructure	1992 – present Later enterprise computing

2. Quick review of Lecture #2

Process Summary of Lectures 1 & 2 [Important for the project]

(a) What are the business challenges that could be improved or enhanced or supported by an Info System (IS)?

- **Internal challenges**: managing all aspects of the company/business
  - people
  - equipment
  - finances
  - ...

  → enterprise application software
- **External challenges**: products/services for customers

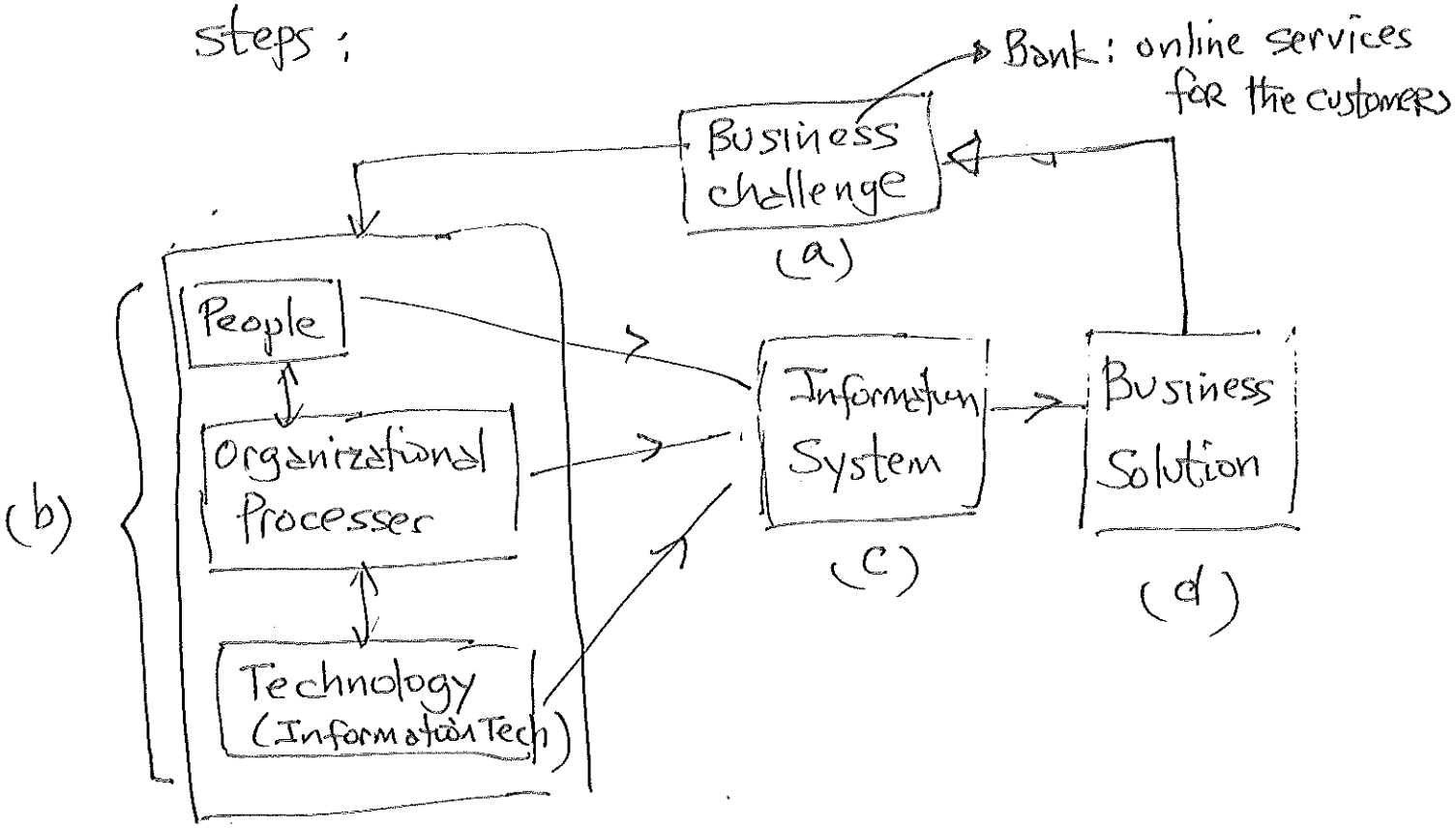
  → Revenue ($$$)

(b) How can people, organizational business processes, and info technology be used to create the information system?

(c) Define the information system to solve the business challenge [answer to (b)]

(d) Define the information technology based business solution to the business challenge

(e) Draw a diagram showing the above 4 steps:



3. Operational Excellence & Customer Intimacy through Enterprise Application Software

What is an application?

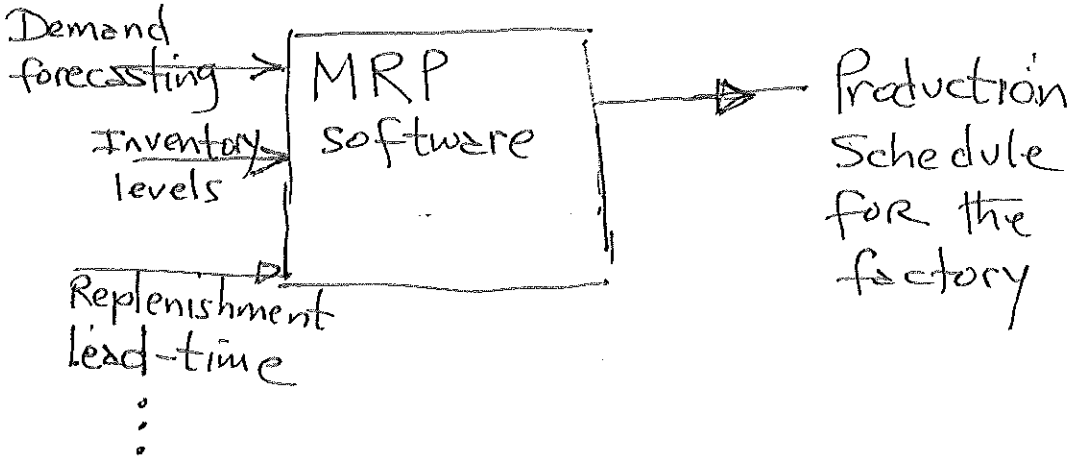
Computer software that performs useful task for a user or an organization, involving storage, manipulating, & communicating information.

If the application supports an organization, it is called an Enterprise application.

How did Enterprise Applications evolve?

1. MRP systems

Material or Manufacturing Resource Planning:



2. Add other useful features to MRP software

- order processing
- product costing/pricing

⇓

more active role
in the business processes

} updated MRP

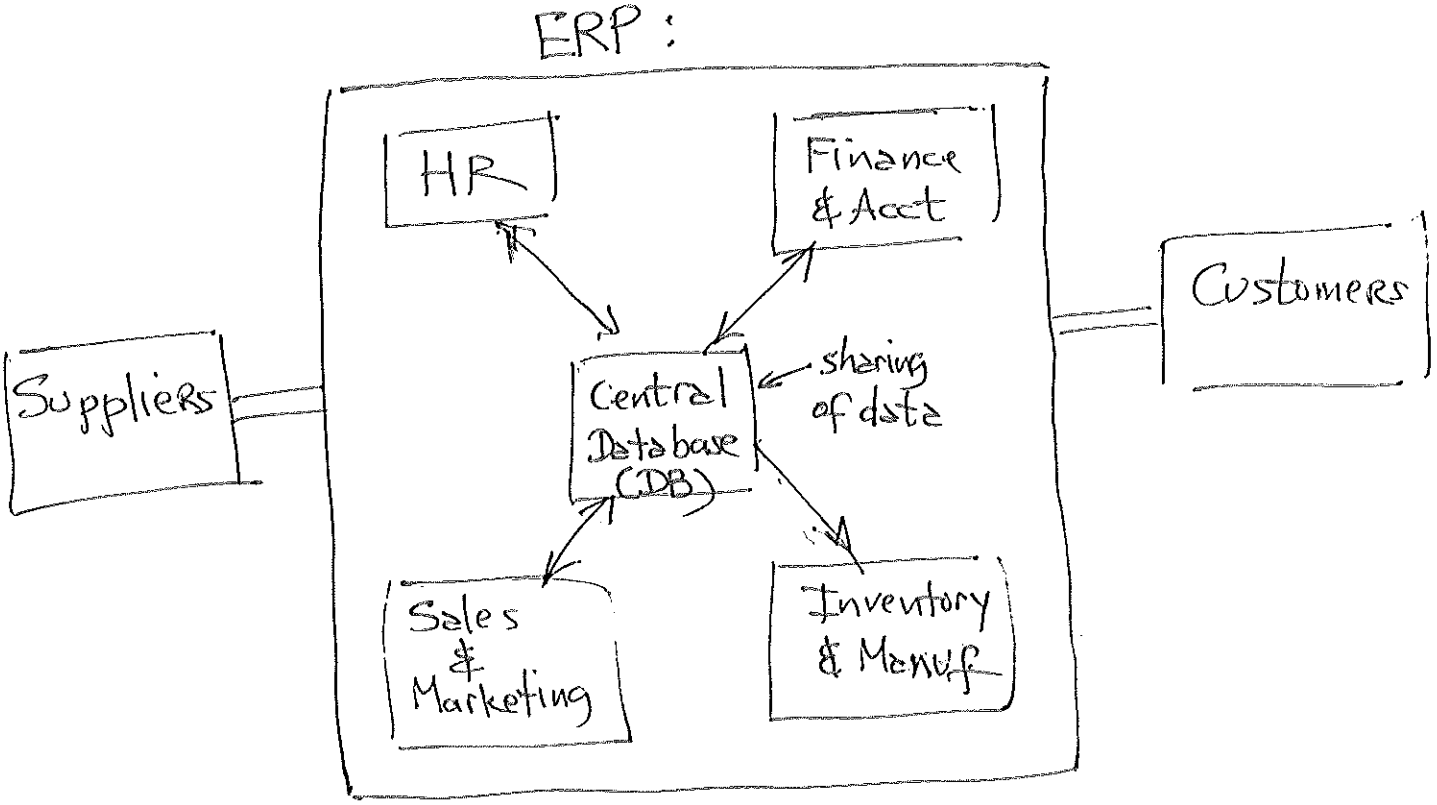
3. Link the "updated" MRP system across functional areas [Finance, Marketing, ...], including the sharing of data.

4. Result: MRP becomes ERP or ERM

ERP: Enterprise Resource Planning

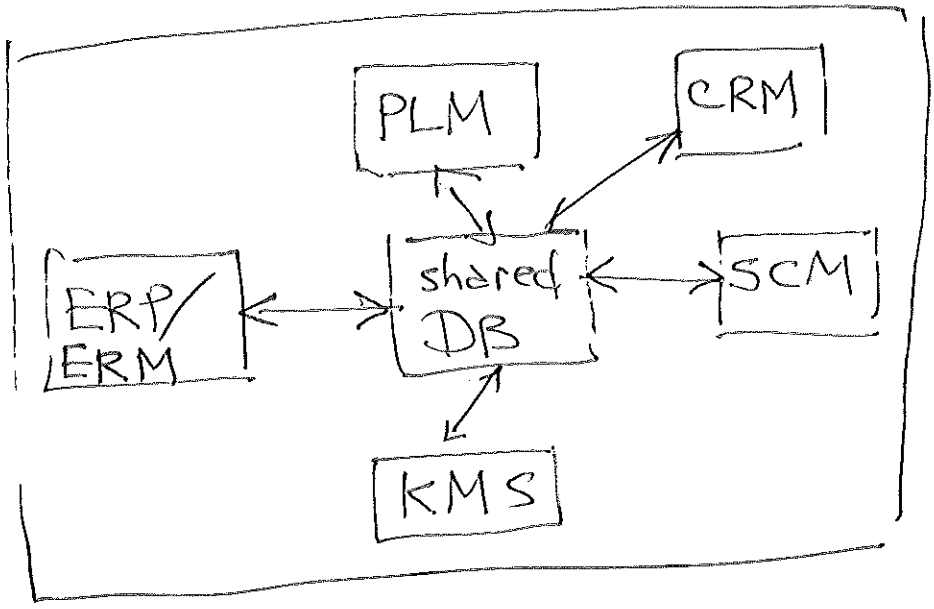
ERP ⟹ software architecture with modules for:
(or ERM)

- Accounting & finance
- Sales & Marketing
- Human Resources (HR)
- Materials Management
- ....



5. How do enterprise applications help businesses acheive operational excellence?

(a) Link all the different types of enterprise application software using a common database



; Note: all these software applications were defined in Lec #2.

(b) Result is an information or virtual model of the enterprise which can be used to monitor and control all the operations in the firm: purchasing, payroll, sourcing, manufacturing planning, ...

(c) All enterprise apps are connected to a common data base to enable info exchange & use between the apps

(d) Enables "centralization" by enforcing uniform data standards and a unified technology platform.

(e) Enterprise-wide data generation enable performance evaluation & improvement (Business Intelligence)

6. Important Enterprise Application software

(i) ERP/ERM (studied above)

(ii) SCM: Supply Chain Management

Planning

- Demand forecasting
- Inventory Management
- Choosing suppliers (Sourcing)
- ...
- ...
- ⋮

Operations

- Product Availability (Is the product available to the customer on-demand?)
- scheduling deliveries (UPS)
- routing
- .....

Logistics

SCM software integrates manufacturing, planning, sourcing, and delivery of products & services.

(TIM 125: Supply Chain Management)

See Chapter on "Acheiving Operational Excellence & Customer Intimacy in EMIS by L^2.

(iii) Customer Relationship Management (CRM)

CRM helps the firm (enterprise) to achieve customer intimacy. How?

CRM system

- automates customer facing processes in Sales, Marketing, and customer services
- enables the entire enterprise to view & understand the customer
- These views can be used to understand & quantify customer satisfaction (via metrics) in order to provide better service, & also sell market/sell new products [Targeted advertising, marketing, sales, ...]
- There are 2 types of CRM software

Operational CRM

helps with customer facing transactions
- order fulfillment
- service
- satisfaction

Analytical CRM

software that uses data from operational CRM, analyzes this data) & Then uses the analysis to add more value for the customer

Challenges (road-blocks) posed by enterprise applications:

- Requires extensive organizational change
- Difficult to implement (owing to complexity of the software)
- Large new software investment (Capital Expenditure: Cap Ex)
- needs a careful Cost-Benefit analysis, performance improvement.
- requires re-engineering existing business processes
- employees require training
- Data management is a crucial aspect of introducing enterprise application software

Next generation Enterprise Applications

The latest trend is

Enterprise Solutions
Enterprise Suites
e-Business Suites

} that integrate core ERP/ERM processes, & make them available as function-specific Web Services :

Example (a) SAP Business Suite

Core ERP system
- Purchasing
- Finance & Accounting
- HR
- ....

(+)

function-specific Web Services [over 500] :
- Recruiting
- Collections Mgmt.
- ...
- ...

(b) Oracle e-Business Suite

(c) Microsoft Dynamics Suite (for mid-sized companies) [Sales Revenue: ~$250M-500M]

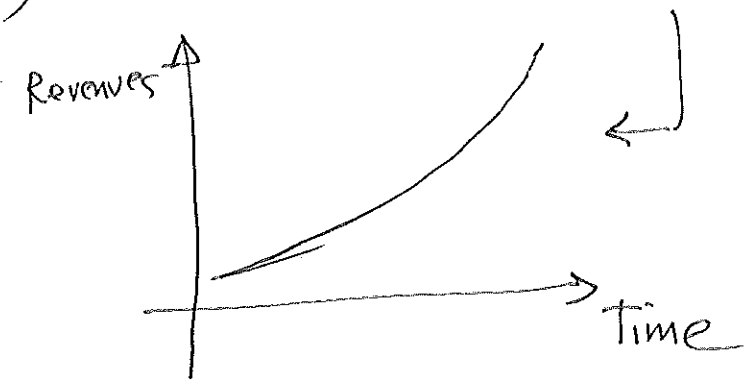
4. E-commerce

4.1 Definition

E-commerce involves digitally enabled commercial transactions between & among organizations & individuals using the Internet & the Web

- started around 1995

Revenues: ~$5B (1998) → $50B (2000) → $350B (2013)



Digital market is a market created by information technology to connect buyers & sellers

Digital goods: goods delivered over a digital network.

examples: music, movies, ...
(iTunes) (Netflix)

4.2 Unique features of eCommerce

- Ubiqity : accessible to everyone, anywhere, anytime (in general)
- Global reach : everyone across the globe
- Uniform standards for the IT involved
- Interactivity between buyers & sellers
- .....

4.3 Principal e-commerce business & revenue models

Business models

- e-Tailer (on-line retailer: Amazon)
- Transaction broker (finance)
- content providers (Netflix, iTunes, ...)
- service providers (AT&T, Verizon, Comcast, ...)
- ...

Revenue models

- Advertising (Google)
- Sales (Amazon)
- Subscriptions (magazines, ...)
- Free / Freeium
  - Free: basic services
  - Freeium: advanced services cost $.

4.4 E-commerce has transformed marketing

- New ways to identify & communicate with <u>millions</u> of potential customers
- Crowdsourcing is based on the "wisdom of crowds" & provides customer feedback on improving products and services

4.5 E-commerce has improved the efficiency of Business-to-Business (B-to-B) transactions by connecting any Business with its suppliers (Supplier Intimacy)

Read "E-commerce" chapter in EMIS by L^2 for more details & discussion on this topic.

Project feedback

Companies:

- Yelp
- Uber
- Netflix
- Adobe
- Netflix

} You are a team working in these companies

Action items:

1. Work as a team: do team problem-solving; higher quality work, better solutions, checking solutions, ...
2. Read your notes
3. Use your notes

} along with the EMIS text

4. Plan your work over several days (don't work at the last minute)

} also apply to HW

Do the Database SQL tutorial on the class web-site.

SQL Tutorial

SQL: structured query language (language for manipulating data in a DB)

TIM 50 DB

problems to be done in DB assignments