

Chapter 4 Evolving application of information technology

Stages of IT Evolution

Table 4.1

Automation of work

Benefits:

- improve productivity
- improve accuracy
- reduce time
- minimise strain on people
- handle information/data more efficiently
- improve operational efficiency

Impacts on organisations:

- Improve operational efficiency i.e. limited changes to people's jobs or to business processes.
- Learning requirements are simple and narrow.
- Changes are limited within one or small no. of functional areas.
- Application development/operation is limited to IT experts.

Examples:

- Payroll
- Check processing
- Airline reservation
- Bar code reading
- Telephone bill processing

Information management

Benefits:

- provide competitive advantages
- assist management in decision making (operational, tactical and strategic)
- improve productivity
- improve accuracy
- reduce time
- minimise strain on people
- handle information/data more efficiently
- improve information flow efficiency
- improve coordination efficiency

Impacts on organisations

- Information is processed and used for operational, tactical and sometimes strategic decision making purpose.
- Business processes have been restructured and better integrated.
- Changes cross functional boundaries, change or eliminate them.
- Application operation is extended to non-experts.

Examples:

- Customer information system
- Credit rating system
- Airline yield management system

Business transformation

Benefits:

- Identify new market segments
- Define the company strategy differently
- Define the relationship within the organisation and amongst the organisations differently e.g. value chain management, industry structure.

Impacts on organisations:

- Enable organisations to rethink and redesign their business process and how they carry out their business.
- Benefits extended beyond operational and tactical effectiveness to strategic effectiveness and positioning.
- Change industries and economy structures i.e. knowledge industry/economy

Examples:

- JIT inventory control system
- Electronic commerce
- (Amazon, eBay)
- Amazon.com : online purchasing system
 - wider selection of books
 - cheaper price/discounts
 - convenient (to buy, to deliver)
- Ebay.com: online auctioning system
 - enormous amount of information
 - cheaper price
 - convenient
- Google.com (presentation!)

Management blind spots: four critical dimensions of complexity

(Potential difficulties when applying IT into business)

- Linkage: Managers need to understand the linkages within the organisation especially new linkages created by the IT investment, the linkage between the IT investment and business strategy and between IT investment and investment required in other areas of the business in order to fully benefit from the investment.
- Reach: Managers need to realise the impacts of IT investment on each level of management of the business and how the organisation must change in order to adapt to the new IT investment.
- People: Impacts of IT investment can be wide and diverse on a large no. of people both in and outside the organisations. Managers need to understand who these people are today and how they need to change to fit the new environment. It is especially difficult when people are different in starting points, attitudes and motivations.
- Time: Realistic time frames are hard to estimate. Managers need to reassess what the realistic time period is required for the full benefits to be realised. Estimation of realistic time period is based on understanding the three above dimensions.

Business transformation and the knowledge economy

IT creates new opportunities in business transformation which include expanding geographic scope, expanding electronic commerce and creating virtual companies. The organisational forms and natures of the organisations, industry and economy will also be changed.

Students are required to read the section themselves

End-user computing as a strategic issue

Four categories of end-users based on their computer capabilities

- menu-level end users
- command-level end users
- end-user programmer
- functional support personnel

EUC: computer system development that utilise maximally the end-user knowledge and skills.

Most EUC applications have been restricted to

- Simple DSS
- OA that meet the individual needs

Leave the information specialists with

- AIS , MIS
- Complex DSS
- OA that meet organisational need
- Expert system

Benefits of EUC

Shift the workload to users

- Enable specialists to concentrate on developing more complex system
- Enable specialists to devote more time to maintaining existing system

Reduce/eliminate communication gap between user and information specialist

- User understand the problem area
- Specialist understand the technology better
- If users develop their own application, there is no communication gap (no need for communication).

Risks of EUC

- Poorly aimed system: users may apply the computer to applications that should be performed some other way, such as manually. User misuse the purpose of the system
- Poorly designed and documented system: end-user tend to overlook the need of document their designs so that the system can be maintained
- Inefficient use of information resource: no central control over hardware, software and therefore incompatible hardware and software.
- Loss of data integrity: end-users may not exercise the necessary care in entering data into the firm's database
- Loss of security

EUC has great potential benefits. Organisations should have strategic plan, working environment so that EUC can develop and be fully utilised. The risks must also be controlled.

Homework: Q1, Q3, Q5 (presentation), Q7, Q8: (a) only.

Next week: Management, its importance, management and decision making.