

Chapter 8: Workgroup Information Systems

I. Introduction to workflow:

- Early application of information system in processing transactions i.e. repetitive and can be automated tasks e.g. Information systems that handle invoices, bills, receipts etc.
- Second phase of development was in improving personal productivity which includes decision support systems, office automation system for individual use etc.
- Third phase of the development was to coordinate the work of a group of people, so as to maximise the potential benefits of teamwork.

Benefits of workgroup information systems

- Enable workers to collaborate
- Improve productivity and effectiveness of team work
- Improve coordination in solving complex tasks
- Enable organisation to respond quickly toward changes in the business environment

However, these systems must balance the need to *structure* and *coordinate work* with conflicting needs so as to effectively support communication between users.

The evolution of workflow market

Early application of workgroup computing was started in 1980s, with “workflow system” – File Net Corp. focused on automating repetitive business processes e.g. bank loans, insurance claims, record management achieving. i.e. this is a **transaction-based workflow**.

Characteristics:

- Focus on automating repetitive tasks, but not suitable for less orderly transactions. E.g. processing bank loan application can be predictable while processing consumer queries can be less predictable, as the process may be changed according to the requirements, natures of the queries. Thus, the early application in workflow was more applicable to clerical workers rather than knowledge workers.
- Provide little or no document management capability. The weakness of the system is that most collaborate business process are *document intensive* rather than *transaction intensive*. For example, in order to review business contracts, there is a constant need for checking in and out documents. The workflow system needs to fully integrate with a document management applications. However, ideally this should be one system for both purposes of routing documents and managing documents so as to maximise the benefits of easy-to-administer and minimise the costs and technical problems of maintaining two separate systems.
- Require significant customisation to add the application to the workflow. This can be productive for structured, repetitive transactions. However, in business, most transactions are not very structured and therefore there is a need for workflow systems that support rapid prototyping of new business process with little or no programming. This method is more productive for less orderly transactions i.e. unstructured transactions.
- Utilise *server-based* architectures, and not suitable for *client-server* technology.

Types of workflow systems:

- Transaction-based workflow system: used in repetitive, paper-based business transactions.
- Collaborative workflow systems: used in mission-critical and knowledge based business process.
- Ad hoc workflow systems: lack of structure but effective for small and ad-hoc problems.

The weakness of ad-hoc workflow system is that it is totally *user driven* rather than being driven by organisation and therefore will belong to the users. While the transaction-based and collaborative workflows will allow knowledge be captured and reengineered within the organisations.

Figure 8.1

Figure 8.2

II. Essential attributes of workflow as a strategic technology:

To be effective in supporting business process of an organisation, workflow must have several attributes as following:

Rapid Application Generation: strategies to quickly define new workflows, simulate its operation and generate new workflow definitions through a series of iterations.

The business processes are dynamic in nature due to competitive business environment, change in legislation etc. There is a constant need to adjust the workflow as quickly as possible to fit with the new changes. RAD is therefore an essential requirement.

The approaches to RAD include the use of visual programming and other tools for building graphical interfaces, iterative prototyping of key system elements, automation of program code generation, close teamwork among users and developer. The process does not have to be sequential and key parts of development can occur simultaneously.

Application Independence & Extensibility:

Independence

- In order to be able to support a wide range of business applications such as insurance, bank loan processing or engineering change management and process safety management, the workflow product must be completely independent of application requirements for data definition, process routing and application interfaces. The rules, which define the organisation structure, document structure and process routing, must be customisable by users.
- Users must be able to change the workflow process through an intuitive interface, which does not require programmers' involvement.

Extensibility

- Workflow must be extensible from market-leading application development tools e.g. Visual Basic.
- Workflow must enable third-party applications to easily integrate with all of the functions of the workflow product.

Robust Workflow Engine: Workflow systems must have several key functions such as job definition, security, parallel and ad-hoc routing, drill-down workflows, event monitoring and simulation.

Job definition: users must be able to define the series and linkage of tasks to create a workflow process.

Security: Product should provide multiple user-definable levels of security at the database record level. The security rules must also be definable

Process modification: Users must be able to alter the process of workflow.

Parallel routing: ability to route workflow task to multiple users at once (this is an advantage over paper documents) and the ability to synchronise the workflow process based on managing the document approval cycle.

Ad-hoc routing: Ability to define flexible routing depending on new business requirement.

Approval rules: especially in complex business process.

Drill-down workflow: ability to define "workflow within a workflow" so that the organisation can take full advantage of the existing workflow, when establishing a new one.

Event monitoring: Ability to monitor significant event e.g. users miss the time requirement -> appropriate actions.

Status reporting: Provide reports on the status of all jobs in the process.

Audit logging: let users to view historical actions

Simulation: Ability to simulate a new workflow prior to actually putting the new process into operation.

Modular Product Design: so that to reduce costs and time of new product development.

Environmental Independence: Workflow products should operate independently of key technology infrastructures such as database, server and network. E.g. SQL and ODBC to develop database and network independent workflow products; Client/server based workflow products should have the ability to extract data from traditional network system (mainframe based applications).

III. Workflow and the emerging information infrastructure

Figure 8.3

Workflow exist within an environment of interrelated applications e.g. business applications, document management, groupware, operating systems.

Groupware environment are a collection of software which facilitate document delivery and collaboration between multiple users.

Examples of traditional groupware products are Lotus Notes, MS Exchange with capabilities of emailing, routing, document replications, which are operated on client/server configuration.

Internet and Intranet is a different configuration for a groupware environment and gaining popularity. It is a threat to traditional groupware products.

Internet/Intranet have competitive advantages of:

- Real-time information access to massive database, including information external to the organisation.
- Low incremental cost (i.e. running cost) per user relative to current user workstations.
 - o Low cost multi-platform development environment
 - o Simple "point and click" interface.
 - o Easier distribution strategy for new software by subscribing to software for a period of time.

Client/Server configurations have the advantages of

- Structure of built-in database
- Proven, mature technology with large installed base i.e. more reliable, better security,

The current situation is that there is a compromise between the two. Most of large international organisations utilise both environments.