



Collaborative Systems

What is Groupware?

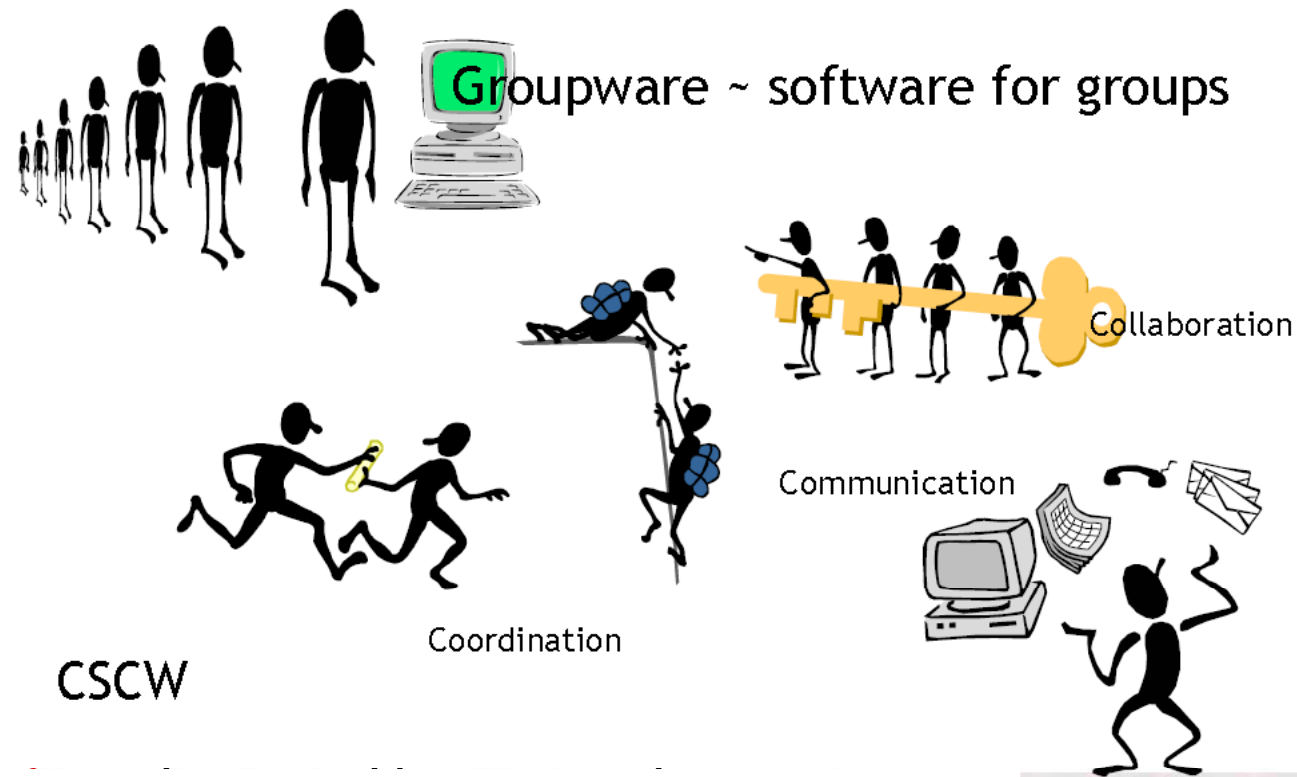
➤ Software

- Enabling collaboration within and between companies
- Computer Supported Cooperative Work (CSCW)
- Range of software to enable people to work together efficiently
 - ◆ Increasing information sharing
 - ◆ Reducing communication overheads
 - ◆ Providing coordination
- Example → Email, Microsoft exchange, Lotus Notes

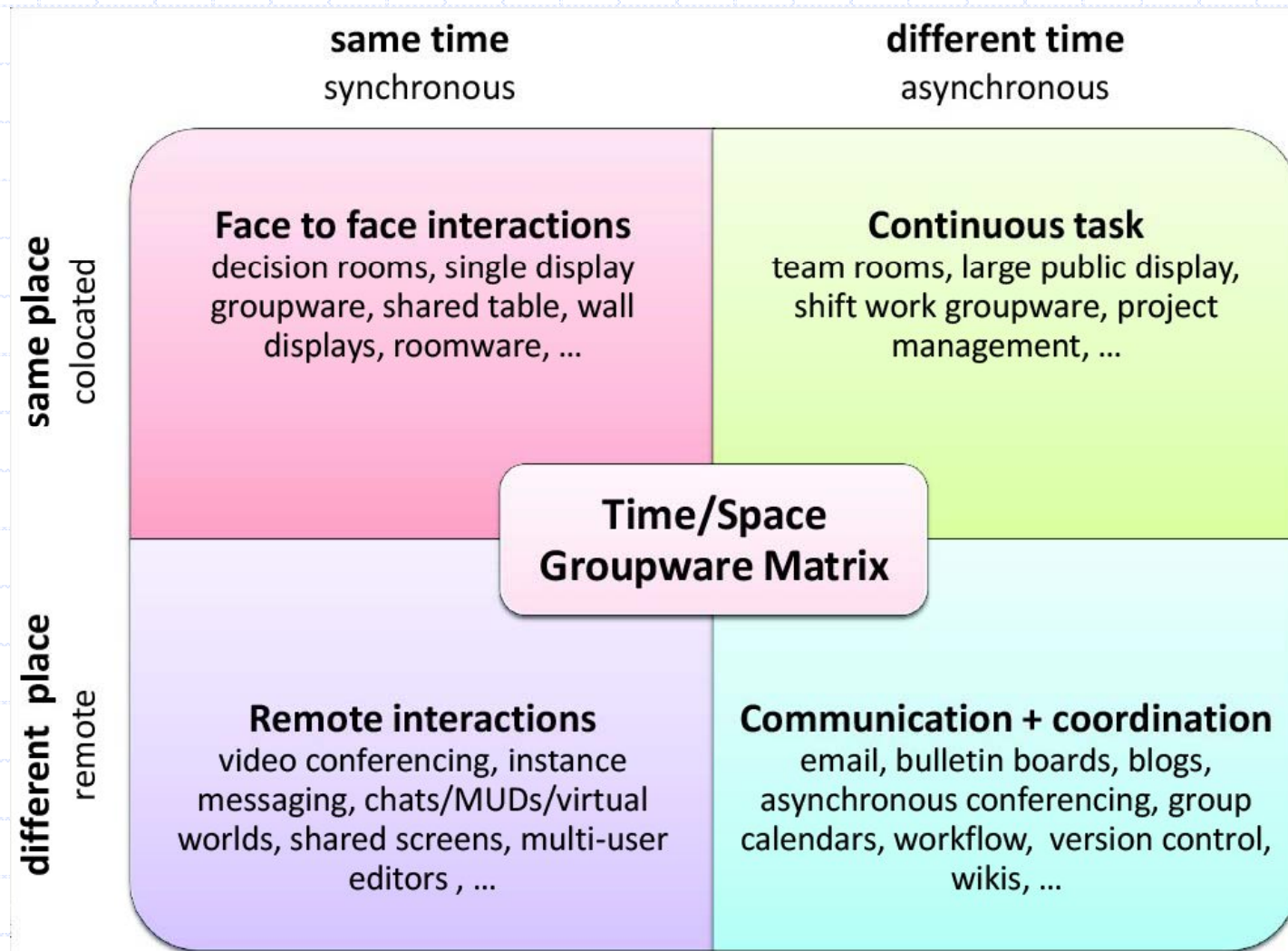
Context

➤ Computer Supported Collaborative Work

- Collaboration, Communication, Coordination → Groupware



CSCW Matrix



CSCW Matrix

	Same time "Synchronous"	Different time "Asynchronous"
Same place "Colocated"	Presentation support	Shared computers
Different place "Distance"	Videophones, Chat	E-mail, Workflow

Groupware System Advantages

Facilitating communication (faster, easier, clearer, more persuasive)

Enabling telecommuting

Reducing travel costs

Sharing expertise

Forming groups with common interests where it would not be possible to gather a sufficient number of people face-to-face

Saving time and cost in coordinating group work

Facilitating group problem solving

Groupware and Workflow

➤ What is the difference?

- Subset of Groupware
- Must be considered distinct products
- Groupware **MUST** involve element of collaboration
- .. not necessary for workflow systems

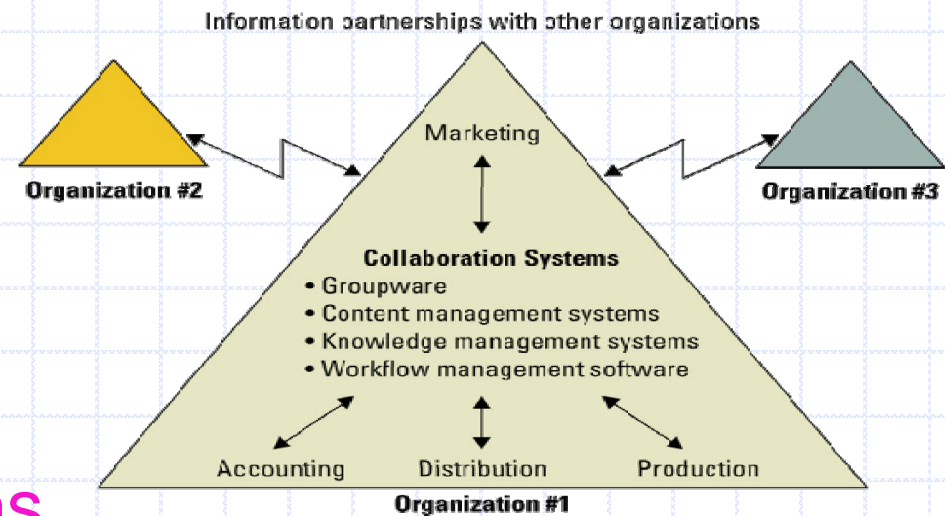
➤ Summary

- Both are commonly used for collaboration
- Separate types of product
- Groupware is usually used in an ad hoc way
- Workflow imposes a more strict, structured working

Groupware Functions

➤ Three C's

- Communication
- Collaboration
- Coordination



➤ Collaboration Systems

- Knowledge management systems
- Groupware systems
- Content management systems
- Workflow management systems

Groupware Functions

➤ Knowledge Management

- involves capturing, classifying, evaluating, retrieving, and sharing information assets in a way that provides context for effective decisions and actions

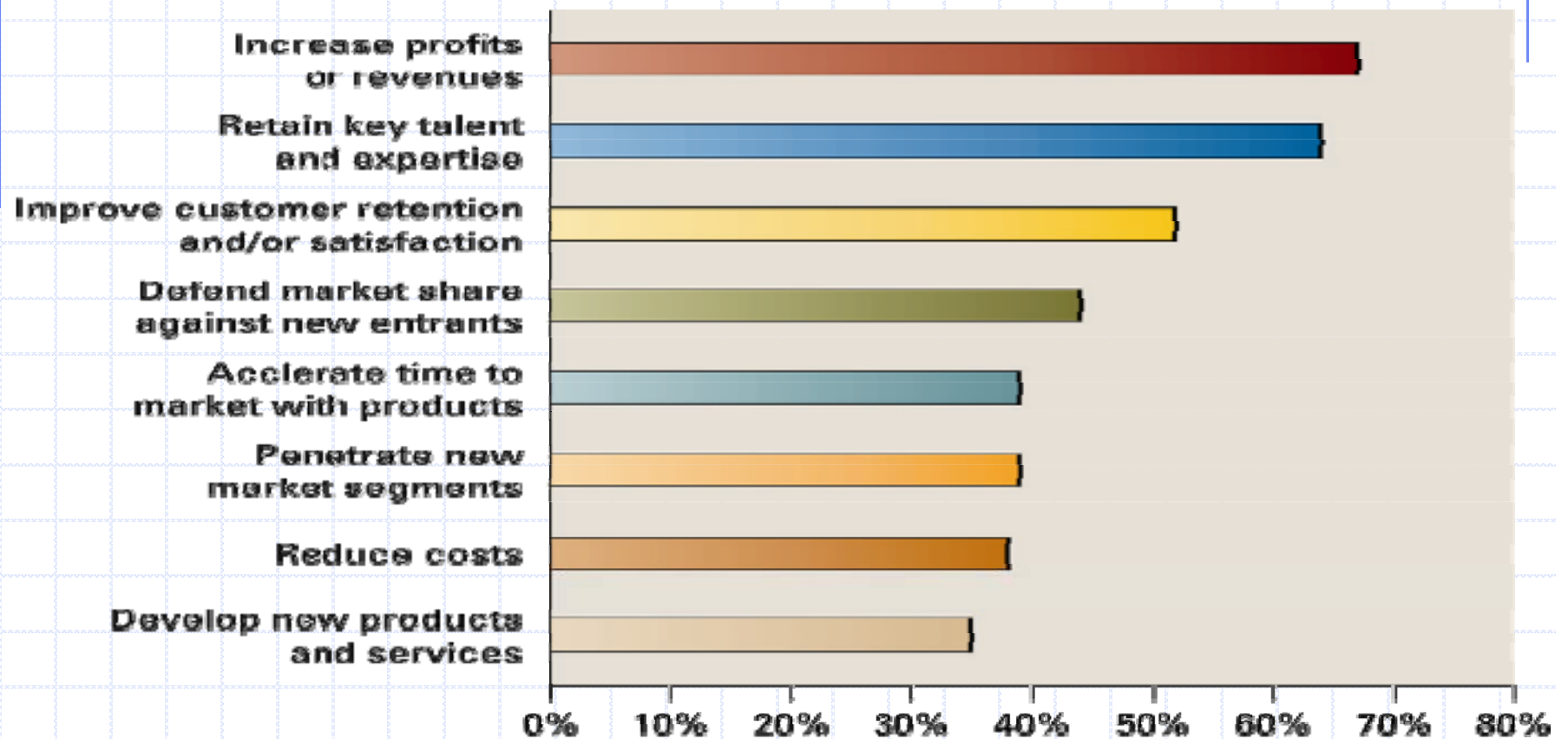
➤ Knowledge Management System

- supports the capturing and use of an organization's "know-how"
- Includes
 - ◆ Knowledge repositories (databases)
 - ◆ Expertise tools
 - ◆ E-learning applications
 - ◆ Discussion and chat technologies
 - ◆ Search and data mining tools

Groupware Functions

➤ Knowledge Management

■ *Reasons why organizations launch KM programs*



Groupware Functions

➤ Email

- Most successful groupware tool
- Email features and functions
 - ◆ Addressing, Deleting old messages, Archiving
 - ◆ Attachment, Group broadcasting, Security
- Client-to-Host Communication
 - ◆ POP3, IMAP4
- Host-to-Host Mail Transfer
 - ◆ SMTP

Groupware Functions

➤ Problems with Emails

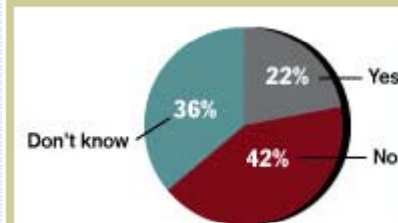
- Insecure
- Open
- Dangerous
- Delivery not guaranteed
- Email is not real time
- Lacks ubiquitous status

Who's Monitoring E-Mail?

47%	regularly audit outbound e-mail content
38%	employ people to read or analyze e-mail
24%	plan to do so

Data: Proofpoint/Forrester survey of 294 e-mail decision makers

Does Your Company Filter Outbound E-mail?



Data: Radicati Group survey of 363 respondents with a wide variety of job functions

Bad Habits

31%	of employees say their company doesn't publish official e-mail use policies
30%	regularly or sometimes send corporate e-mail from a personal account
25%	regularly forward corporate e-mail to a personal account
6%	say they've sent company information to someone they shouldn't have

Data: Radicati Group survey of 363 respondents with a wide variety of job functions

Top Causes Of E-Mail Outages

35%	Server hardware failure
19%	Connectivity loss
16%	Database corruption
16%	SAN failure

Data: MessageOne survey of 1,420 IT decision makers

Groupware Functions

➤ Emails for Managing Workflow

- Poor way to share files
- No application framework
- Platform dependent
- Haphazard workflow method
- Snow day caused by not having e-mail
 - ◆ A 5,000-employee health insurance company in the Midwest estimates it lost \$3 million in productivity and business during an eight-hour outage

Top Business Concerns About Outbound E-Mail

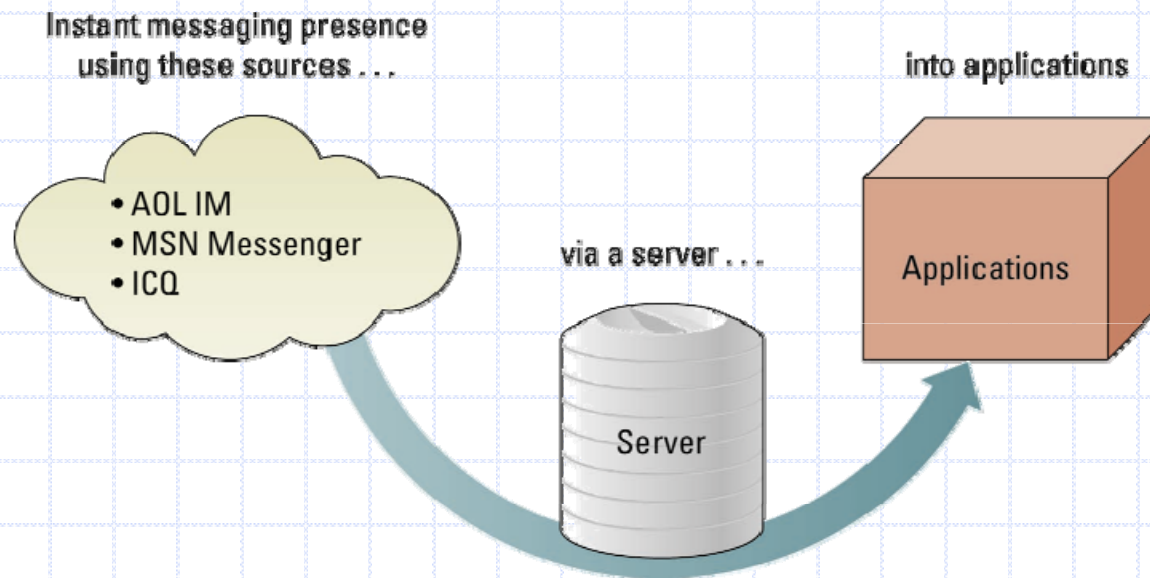
71%	Protecting identity and financial privacy
68%	Complying with financial regulations
67%	Stopping leaks of confidential information
67%	Protecting health care privacy

Data: Proofpoint/Forrester survey of 294 e-mail decision makers

Groupware Functions

➤ Collaboration Trend

- Real-time collaboration tools like instant messaging are creating a new communication dynamic
- **Instant messaging** → Create a kind of private chat room with another individual to communicate in real-time over the Internet



Groupware Functions

➤ Conferencing

- Text based conferencing
 - ◆ Usually asynchronous, 120 wpm typists
 - ◆ Discussion thread

➤ Video Conferencing

- Requirements
 - ◆ Hardware/Software – Codec Compression (1:500)
 - ◆ Digital Network – ISDN or IP, Audio Modems
 - ◆ a digital network of some kind (usually ISDN or IP)
- Problems
 - ◆ Appearance Consciousness
 - ◆ Eye Contact

Types of Video Conferencing System

➤ Telepresence

- Appearance of being present (tele-presence)



- Portable (roll-about) or Immersion (room based)
- HD Codec, Large flat panel display devices, Integrated high fidelity audio
- Cost → 60,000 to 300,000 US\$ (size, capacity)

Types of Video Conferencing System

➤ Integrated Video Conferencing Rooms

- Used in conference rooms, board rooms, classrooms with multiple participants



- Centralized location for the codec and associated hardware
- Main camera, peripheral video sources → main conference area
- Cost - 10,000 to 100,000 US\$

Types of Video Conferencing System

- Set-up or appliance video conferencing system
 - Designed to sit on a Monitor



- Set-top video communication (maintained on cart)
- Can be rolled around in different rooms (roll-about)
- Cost → 3,000 to 20,000 US\$

Types of Video Conferencing System

- Desktop video conferencing system
 - Video communications into personal workspace



- Video conferencing from your PC
- Industry requirements and standards-based
- Good quality at lower cost
- H.323 voice and video, USB or FireWire camera
- Cost → 250 to 400 US\$

Groupware Functions

➤ Content Management Systems

- Provides tools to manage the creation, storage, editing, and publication of information in a collaborative environment
- CMS marketplace includes:
 - ◆ Document management system (DMS)
 - ◆ Digital asset management system (DAM)
 - ◆ Web content management system (WCM)

Groupware Functions



➤ Document Management

- Creation, storage, organization, transmission, retrieval, manipulation, update, archival and retirement of documents based on organizational needs
- Types of Industries and Documents

Industry Segment	Document Type
Automobile, Construction	Engineering drawings
Pharmaceutical	New drug applications to FDA
Insurance	Claims
Financial	Product brochures, swaps and derivatives
Consulting	Contracts and agreements
Architecture, Engineering	Blueprints and photographs
Consumer Products, Financial	Marketing literature
Lawyers	Legal briefs
Airlines*	Manuals and handbooks
All	Memos/White Papers

Groupware Functions

➤ Electronic Document Management System

- Informal/formal, ad-hoc, paper-based, structured

- Advantages

- ◆ Shuffling through papers
- ◆ Rewriting when destroyed (accidentally or otherwise)
- ◆ Routing hard copy documents from one approver to another;
- ◆ Looking silly in front of clients who are more likely to be impressed by a digital presentation
- ◆ Remembering where documents are stored
- ◆ Filing papers
- ◆ Alphabetizing or organizing papers; Sorting documents
- ◆ Editing or making changes on hard copy documents that subsequently have to be edited digitally
- ◆ Highlighting paper on hard-copy documents; Nursing paper cuts



Groupware Functions

➤ EDMS Issues

- Location
- Filing
- Retrieval
- Security
- Disaster Recovery
- Retention Period
- Archiving
- Distribution
- Workflow
- Creation
- Authentication

Groupware Functions

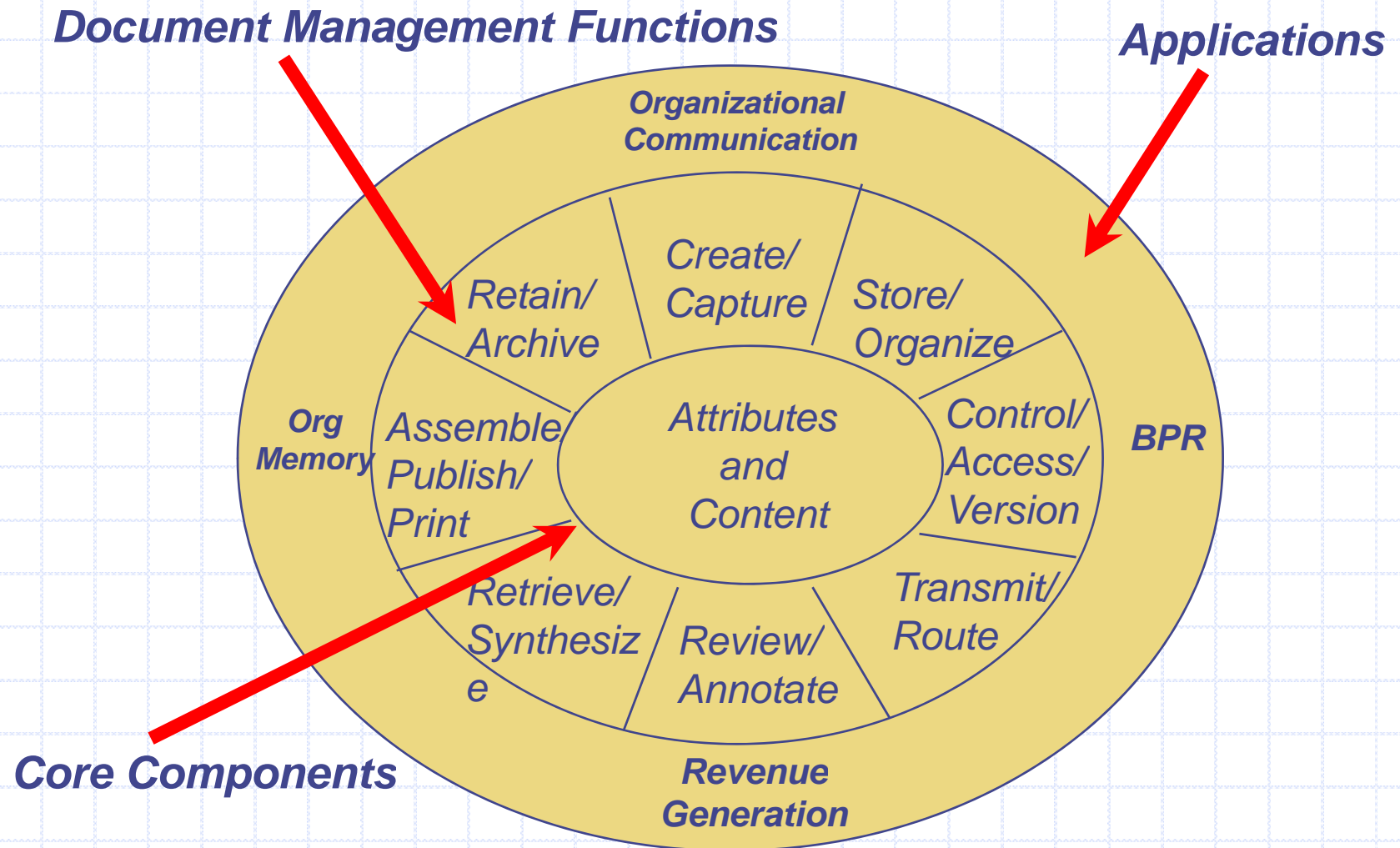


➤ EDMS Components

- Metadata
- Integration
 - ◆ Collaboration/Groupware Software
 - ◆ Other Applications, Retrieval
- Standards
 - ◆ *ODMA, WebDAV, LDAP, SOAP*
- Capture
- Indexing
- Security
- Workflow
- Collaboration
- Versioning
- Publishing

Groupware Functions

➤ EDMS Components



Groupware Functions

➤ DMS Functionality

■ Capture/Create

- ◆ Scanning paper, importing electronic documents
- ◆ Capture meta-data or attributes: author, date, title, keywords, document type, purpose, bus characteristics

■ Check-in/Check-Out

- ◆ Locking mechanism to prevent overwriting

■ Store/Organize

- ◆ Compound documents made of components of multiple media types
- ◆ Structured as hierarchies: cabinets/folders
- ◆ Distributed storage of content and meta-data

Groupware Functions

➤ DMS Functionality

■ Access/Version Control

- ◆ Provide access to members with various roles and privileges: author (Read/Write/Delete), reviewer (Read/Annotate), approver (Read, Change Status)
- ◆ Provide version management so that older versions can be accessed for historical or legal reasons

■ Retrieve/Synthesize

- ◆ Powerful retrieval mechanisms based on attributes, concepts, full-text
- ◆ Stored queries that can be executed periodically
- ◆ Automatic change notifications

Groupware Functions

➤ DMS Functionality

- Transmit/Route
 - ◆ Create workflows among stakeholders and monitor status
 - ◆ Encrypt/decrypt sensitive information
- Review/Annotate
 - ◆ Enable reviewers to read and annotate documents; merge annotations
- Assemble/Publish/Print
 - ◆ Assemble views by combining components based on audience
 - ◆ WYSIWYG displays on screen in native format or printing
- Retain/Archive
 - ◆ Set up rules to retain published and original content (and versions) or to send it to long-term storage (optical disks)

Groupware Functions

➤ DMS Functionality

- Web infrastructure for industrial-strength, document-intensive applications
- IETF Working Group (WEBDAV) defining standards to extend HTTP for:
 - ◆ name space management
 - ◆ overwrite protection
 - ◆ version management
 - ◆ meta-data management

Groupware Functions

➤ Content Management System Vendor Overview

Vendors	Strengths	Weaknesses	Costs
Documentum www.documentum.com	Document and digital asset management	Personalization features not as strong as competitors	Major components start at less than \$100,000
FatWire www.fatwire.com	Web content management	May not scale to support thousands of users	SPARK, \$25,000; Update Engine, \$70,000 and up
InterWoven www.interwoven.com	Collaboration, enterprise content management	Requires significant customization	InterWoven 5 Platform, \$50,000; average cost for a new customer, \$250,000
Percussion www.percussion.com	Web content management	May not scale to support thousands of users	Rhythmyx Content Manager, about \$150,000
Stellent www.stellent.com	Document conversion to Web-ready formats	Engineering for very large implementations with thousands of users	Content and Collaboration Servers, \$50,000 to \$250,000 each
Vignette www.vignette.com	Personalization	Document management and library services are not as robust as others	V6 Multisite Content Manager, \$200,000 and up; V6 Content Suite, \$450,000 and up

References

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- <http://www.netc.org/digitalbridges/teachersguide/production.html>
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