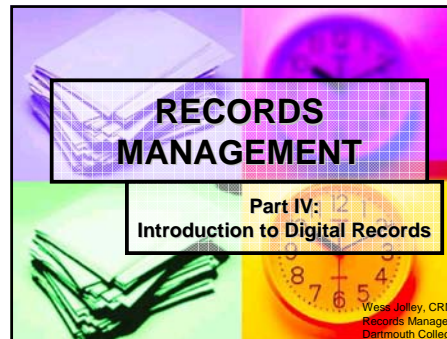


**Pre-Session Handouts**

- Business Card
- Slides

This slide features a vertical column of four small images on the left: a clock face, a stack of papers, a stack of papers, and a stack of papers. The text is positioned to the right of these images.

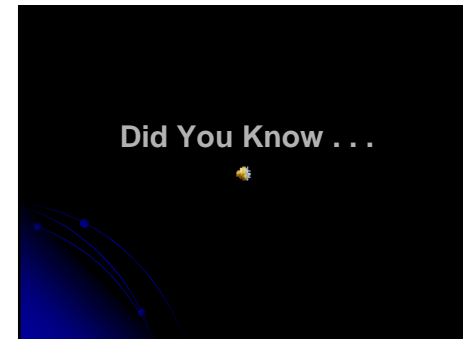


**RECORDS MANAGEMENT**

Part IV:  
Introduction to Digital Records

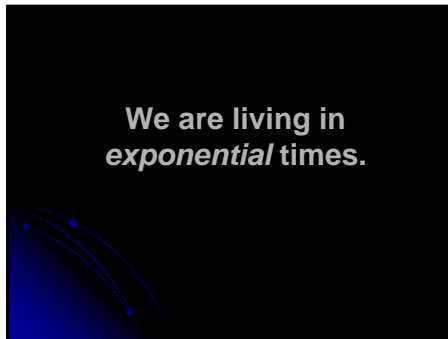
Wess Jolley, CRM  
Records Manager  
Dartmouth College

The slide has a colorful background with a grid pattern and images of a clock and a stack of papers. The title is in a large, bold, black box, and the subtitle is in a smaller black box below it.



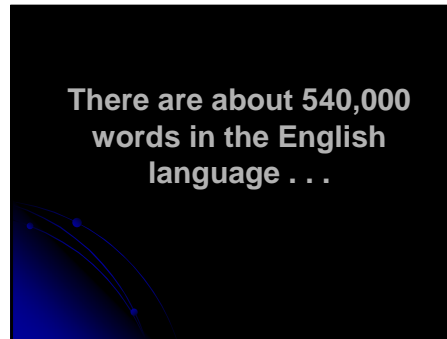
**Did You Know . . .**

This slide has a black background with a blue and white decorative graphic in the bottom left corner consisting of curved lines and dots.



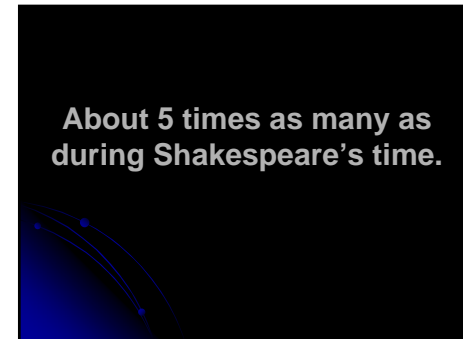
**We are living in  
*exponential* times.**

This slide has a black background with a blue and white decorative graphic in the bottom left corner.



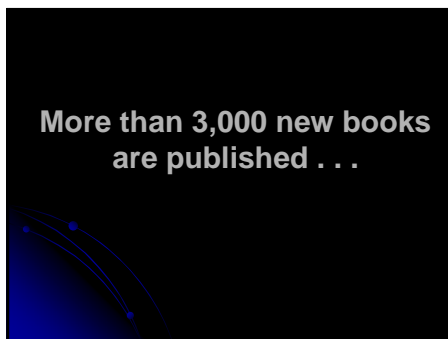
**There are about 540,000  
words in the English  
language . . .**

This slide has a black background with a blue and white decorative graphic in the bottom left corner.



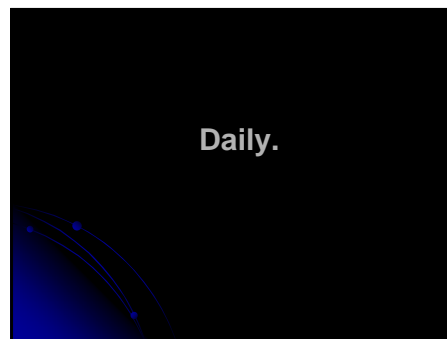
**About 5 times as many as  
during Shakespeare's time.**

This slide has a black background with a blue and white decorative graphic in the bottom left corner.



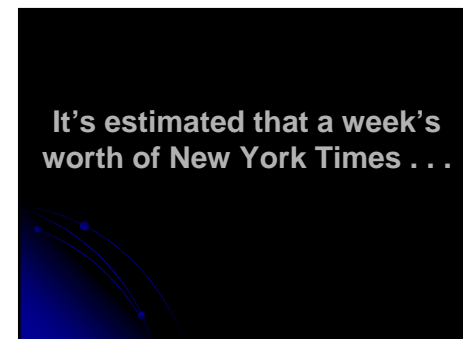
**More than 3,000 new books  
are published . . .**

This slide has a black background with a blue and white decorative graphic in the bottom left corner.



**Daily.**

This slide has a black background with a blue and white decorative graphic in the bottom left corner.



**It's estimated that a week's  
worth of New York Times . . .**

This slide has a black background with a blue and white decorative graphic in the bottom left corner.

Contains more information than a person was likely to come across in a *lifetime* in the 18<sup>th</sup> century.

There are over 70 million unique visitors to Facebook each month.

The average MySpace page is visited 30 times a day.

There are over 6 billion searches performed on Google each month.

The number of text messages sent and received every day exceeds the population of the planet.

During the 300,000 years of human history prior to 1998, we created 12 exabytes ( $12 \times 10^{18}$ ) of information.

That's roughly equal to 6,000 times the content of all U.S. Academic research libraries combined.

The next 12 exabytes of information was created in...

2.5 years.

In 2006 we created  
150 exabytes.

In 2011 we expect to create  
nearly 1,800 exabytes.

Put another way, in the year  
1930, information content was  
doubling approximately every  
30 years.

By 2011 it will be doubling...

Every 11 hours.

In 2001 we created 2GB of  
information for every person  
on earth.

In a lifetime, a person can  
only read and process 4GB of  
information.

The amount of new technical  
information is doubling every  
2 years.

It's predicted to double every  
72 hours by 2010.

That means for a student starting a four-year technical or college degree . . .

Half of what they learn in their first year of study will be outdated by their third year of study.

Third generation fiber optics that have been separately tested by NEC and Alcatel . . .

Pushes 10 trillion bits per second down one strand of fiber.

That's 1,900 CDs or 150 million simultaneous phone calls every second.

Capacity is currently tripling about every 6 months and is expected to do so for at least the next 20 years.

Predictions are that e-paper could become cheaper than real paper.

The volume of e-mails has exploded in recent years with over 200 billion now being sent daily around the globe.

That's 2.3 million every second.

177 million laptops will be shipped worldwide in 2009.

The “One Laptop Per Child” project’s goal is to put an inexpensive computer into the hands of every child.

Predictions are that by 2013 a supercomputer may be built that exceeds the computation capability of the Human Brain . . .

By 2023, a \$1,000 computer could exceed the capabilities of the Human Brain . . .

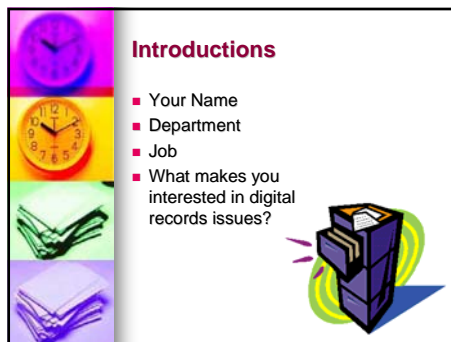
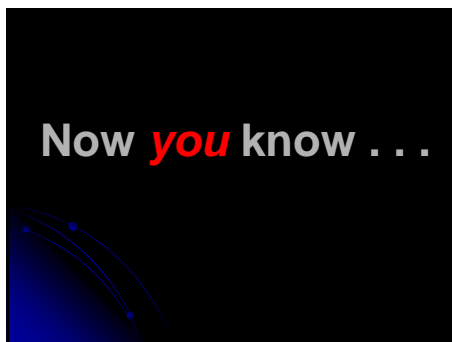
Today’s Second Grader will be just 23 years old and beginning her (first) career . . .

And while technical predictions farther out than about 15 years are hard to do...

Predictions are that by 2049 a \$1,000 computer may exceed the computational capabilities of the *human race*.

What does it all mean?

**Shift Happens.**



### RECORDS:

- “Any recorded information generated in the course of conducting business, and which must be maintained to meet the fiscal, legal, historical or administrative needs of the organization.”
- Records should be **declared and classified** as part of a formal process or workflow.
- Records exist regardless of their format.

### Part 1: Digital Record Keeping: The Challenges of a Changing World

### Are Digital Files Really “Records”?

- Let’s examine some analogies...
- How is a computer like a...
  - Typewriter?
    - A record creation engine
  - A Filing Cabinet?
    - A record storage device
- The Death of the File Room!
- The easy way out:
  - ONLY a record creation engine
  - NOT a records storage device
  - Digital files are NOT records
  - Digital information only BECOMES a record when it is printed out
  - (Printing becomes the record declaration)

### Are Digital Files Really “Records”?

- The realistic approach:
- Acknowledge that computers are both!
  - A record creation engine
  - A record storage device
- We must acknowledge that we’re long past the era when all transactions produced a paper record
- Do the courts accept digital records?
  - Yes! The courts have decided that digital records are REAL records

Internet Explorer screenshot showing a document titled:

**TITLE XXVII  
CORPORATIONS, ASSOCIATIONS, AND PROPRIETORS OF COMMON LANDS**

**CHAPTER 294-E  
UNIFORM ELECTRONIC TRANSACTIONS ACT**

**Section 294-E:13**

*294-E:13 Admissibility in Evidence.* – In a proceeding, evidence of a record or signature may not be excluded solely because it is in electronic form.

Source: 2001, 265:1, eff. Sept. 11, 2001.

### E-mail is included!

- Proper maintenance and destruction of e-mail records is vital—and challenging!
- E-mail can and is being used as evidence!

**AWOL e-mail prompts big fine**

The Securities and Exchange Commission, the New York Stock Exchange, and NASD last week announced they had fined five Wall Street companies more than \$2 million because they had not kept e-mail messages related to their exchange, brokerage or dealer businesses.

Goldman Sachs, Salomon Smith Barney, Morgan Stanley, Deutsche Bank Securities, and U.S. Bancorp Piper Jaffray agreed to pay \$1.65 million each and must detail how they will improve e-mail retention policies within 90 days. None admitted or denied the allegations.

*E-Week, December 9, 2002*

**E-Mail-Deleting Governor Sued**

By Associated Press

WAS 4th Mar. 20, 2002 PST

SALT LAKE CITY -- Four news organizations have sued Gov. Mike Leavitt, contending he is illegally destroying his e-mail.

**Story Tools**

Leavitt's deletion of electronic documents amounts to destroying public records, the lawsuit filed Tuesday contends.

**See also**

- [Just Six Months to U.S. Net Laws!](#)
- [Spain Gets a Stamp of Approval](#)
- [Candidate: Spam in Every Pot](#)
- [China Street: Sour in Spam](#)
- [Exorbiter's suit issues in Politics](#)

Leavitt spokeswoman Natalie Gochour said the governor had not had time to review the lawsuit, but said, "We believe we are abiding by the law. We basically view e-mail much like a conversation."

**The E-mail Trail As Casual Messages Become Court Fodder, How Can Companies Cope?**

By Peter Dizikes

NEWS.com

Oct. 23 — That e-mail you just sent could be used against you in court.

E-mail has turned up as evidence in some high-profile cases of alleged corporate wrongdoing. (ABCNEWS.com)

Print This Page  
Email This Page  
See Most Sent

**ALSO ON NEWS.com**

- **Dangers of Dialogue With a Sniper**
- **Weight Lifting Lowers Heart Attack Risk**
- **EXCLUSIVE: Deepa Sniff Out Anthrax Scientist**

Yes, e-mail, for years the medium of casual workplace conversation, has now become a central form of documentary evidence during a year packed with court cases and congressional hearings about alleged corporate malfeasance.

As workers at Merrill Lynch, Enron, Arthur Andersen, Credit Suisse First Boston and other major companies can attest, even a brief, off-the-cuff message can have serious legal and financial consequences.

And while workers getting in hot water for e-mail indiscretions has been a familiar saga for years, increasingly, they are getting their companies in trouble, too. Given the striking disparity between the spontaneity of these e-mails and their long-term impact, companies from Wall Street to Silicon Valley are stiffening their e-mail policies and stepping up their efforts to monitor employees' message habits. And many firms have begun offering programs to monitor workplace use of e-mail's even more slippery cousin, instant messaging, or IM.

**BUSINESS 2.0**

**Delete That Email!**


The Microsoft antitrust trial is still far from over, but it's already changing the daily habits of corporate America and the face of e-commerce.

By David L. Wilson, January 1999 Issue

While the high-tech industry waits for a verdict in Microsoft's antitrust trial, which most observers expect will wrap up by Valentine's Day, it is clear that e-commerce will be affected not just by the outcome, but by the process itself.

Most importantly, the honeymoon with email is over. Internal electronic correspondence has played a key role in helping the government make its case—the Feds were able to get their hands on Microsoft email messages, some of which directly contradicted Chairman Bill Gates' videotaped testimony.

**This is the Text of the E-mail that Destroyed Arthur Andersen, A Multi-Million Dollar Company**



Mike-

It might be useful to remind the engagement team of our documentation and retention policy. It will be helpful to make sure we have complied with the policy. Let me know if you have any questions.

--Nancy

As quoted in "Information Nation", Randolph Kahn and Barclay T. Blair, pg. 51

**The New Frontier: Digital Discovery**



- What is "discovery"?
- If it exists, it is fair game for the lawyers and the courts!
- **IMPORTANT:** It may exist, even if you think it doesn't!
  - "Trashing" doesn't remove the data
  - Sharp technicians can usually recover it all
  - If the stakes are big enough, they'll get it

For example, in *Murphy Oil USA v. Fluor Daniel, Inc.*, the court heard a dispute in which Murphy Oil wanted Fluor Daniel to go through nearly **20 million pages** of email records to see if any of those records related to the case. The reason there were so many pages of e-mail to search through is that Fluor had apparently not been following its own policy, as the court noted:

*"Fluor's email retention policy provided that backup tapes were recycled after 45 days. If Fluor had followed this policy, the email issue would be moot. Fluor does not explain why, but it maintained its backup tapes for the entire 14 month period."*

Fluor estimated that the cost of providing relevant documents from the 20 million pages of email and attachments would be in excess of **\$6 million**, and would take **six months** — far more than the cost would have been if they had followed their own policy.

—Kahn, Randolph and Blair, Barclay T.; Information Management: Seven Keys to Information Compliance, 2004

**On the Frontlines of the Digital Discovery War: Is The Worst Yet To Come?**

By: Michael Prounis, CEO  
Evidence Exchange ([www.evidenceexchange.com](http://www.evidenceexchange.com))  
New York, NY

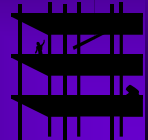
Little more than an interesting CLE topic five years ago, Digital Discovery has come "front and center" stage, particularly to legal professionals with litigation, M&A and regulatory specialties. **Judicial sanctions for spoliation of e-mail, once amounting to minor slaps on the wrist, now have hit the million-dollar-plus level** (i.e., imposed on a major insurance company), and, in the most striking instance, court imposed spoliation sanctions (i.e., that jurors could draw an adverse inference) significantly influenced a multi-billion dollar products liability settlement. Less visible than high-profile court cases, in the deal-making world of M&A, sharp digital discovery added eight figures to a certain telecommunications deal and in the process almost scuttled the deal with regulators.

**The Gloves Have Come Off!**


Yet when is the Corporate World going to get its wake-up call? Digital Discovery is a time bomb for most companies, particularly those who don't move quickly to stabilize the situation! The risks are real, particularly for those companies that are professional litigants given their business profile (e.g., manufacturing, etc.) Not only do many companies ignore the growing risks associated with modern computer technology, but, there seems to be almost a "foreign neglect" in terms of modern electronic records management ("ERM") practices. Even for the best managed companies, electronic records management is in the backwater of the pond. With

**Structured vs. Unstructured Content**

- **Structured Content**
  - Large, mainframe databases
  - Institution or workgroup wide data repositories
  - Examples: FAS, BANNER, HRMS, Oracle Financials
  - **Verdict:** Mostly under control



**Structured vs. Unstructured Content**



- **Unstructured Content**
- These are "Documents"... **In YOUR computer!**
  - "Documents are the containers in which information is presented for human processing"
  - **85% of the all digital records in any organization**
  - **7.5 billion per year (2004)**
  - **Here is where our challenge lies!**
  - For more on Digital Document Management, come back next week!

**Compare these statistics:**



- **Over two-thirds** of all information generated today is in digital format ("Born Digital").<sup>1</sup>
- Paper filing cabinet sales increase by **18%** per year.<sup>2</sup>

**What happened to the "paperless office?"**

Foot Note: <sup>1</sup>Digital Data & Files - Market Development and Computer Technology Review, <sup>2</sup>Computer Technology Review

**We are not there for two reasons...**

**THE PAPERLESS ENVIRONMENT 2009** © 2009 Data Media




When you called you said you couldn't locate your server? It's on the desktop!

No, I meant I really can't find my server!

**Reason 1:**

**We have not committed ourselves to managing digital documents AS RECORDS**

- Traditionally, when we have sensed a "record value" for a digital document, what have we done?
  - We've printed it out!
- We are more confident with managing the life-cycle of a document through paper:
  - Inactive filing
  - Retention Scheduling
  - Disposition
  - Etc.



### Reason 1:


We have not committed ourselves to managing digital documents AS RECORDS



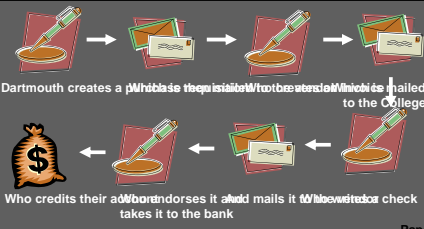
- But this complicates matters, because we now have TWO copies: **Paper** and **Digital**
- Legal opinion tells us that **80% of these are records, in the eyes of the courts**
- We can be saved or condemned by either one
- More importantly: If sued, we have to **produce** both!

### Reason 2:

We still use paper to communicate between incompatible digital systems



- An Accounts Payable Example

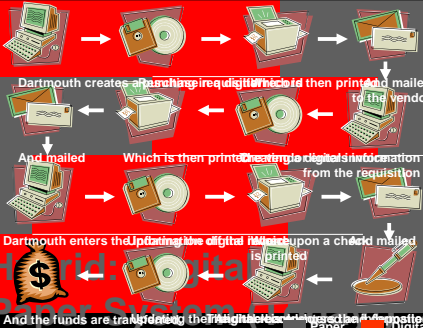


Dartmouth creates a purchase requisition which is mailed to the College

Who credits their account and endorses it and mails it to the bank

And the funds are transferred to the vendor

**Paper System (1975)**



Dartmouth creates a purchase requisition which is printed and mailed to the vendor

And mailed

Which is then printed and mailed to the vendor

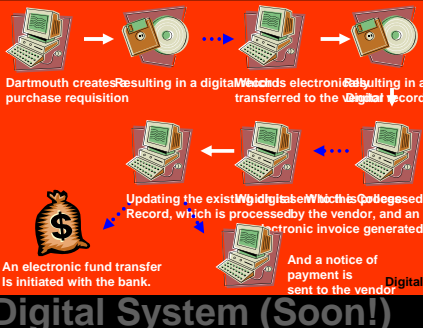
Dartmouth enters the requisition into a digital system

Updating the digital record with information from the requisition

Dartmouth enters the requisition into a digital system

And the funds are transferred to the vendor

**Paper System (1975)**



Dartmouth creates a purchase requisition

Resulting in a digital record transferred to the vendor

Updating the digital record with information from the requisition

An electronic fund transfer is initiated with the bank.

And a notice of payment is sent to the vendor

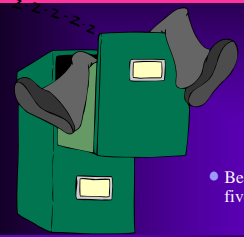
**Digital System (Soon!)**

### Change is Here!

- Legal Changes
- Technology Changes
- Human Changes
- Inevitability




### Take a Break!



- Be back in five minutes...

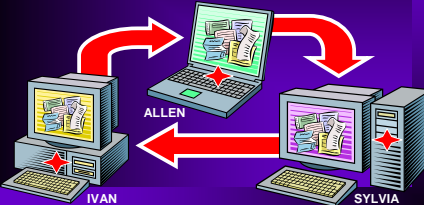
### Part 2:

## Overview of Key Technologies



### Centralized Document Repository Servers

- Distributed Document Storage



IVAN ALLEN SYLVIA

### Centralized Document Repository Servers

- Distributed Document Storage
- Centralized Document Repository

### Document Management

- We have **CONTENT**... Now what do we **DO** with it???
- Organize
- Categorize
- Search
- View
- Index
- Annotate
- Retain
- Dispose
- Define access rights

- We bring it under control
- We create **STRUCTURED** data
- We'll examine this in detail next week

### Document Imaging

- Unifying the repositories!
- Converting paper to digital!

### Digital Workflow

### Electronic Forms

- PDF
- Web

### Encryption and Security

### Web Content Management

- Web Pages **can be** Records!
  - They can be records themselves
  - They are often record generation engines
- Content and Context
  - Web sites typically strip context from transactions
- Recordkeeping options
  - Snapshotting
  - Versioning
  - Archiving of HTML with transactions
- Content Management Systems

### Preservation

- Identifying archival or enduring value information
- Digital Layers
  - Physical Media
  - Hardware to read media
  - Computer to run the drive
  - File Format
  - Application
  - Software Version
  - Operating System

### Requirements for Digital Preservation

- Hardware
  - Readable
  - Retrievable
  - Intelligible
- File Format
  - Encapsulated
  - Reconstructable
- Content Management
  - Identifiable
  - Understandable
  - Authentic



### Preservation: Storage Media and Formats

- Two truths:
  - All storage formats (particularly magnetic media) are unstable!
  - File formats WILL change!
- Committing to migration
- Developing a migration schedule
- When is it really worth it?

### Our Goal:

- Worrying about this shouldn't be your problem!
- Dartmouth should make document management services a key and core component of our digital strategy
- Attend our "Digital Document Management" training

### Part 3: Some Practical Advice

What little there is...

### Be Deliberate About the "Record Declaration"

- What is a "Record Declaration?"
- Caveat: This is meaningful to us, but not to the courts...
  - Therefore, dispose non records and working papers ASAP!
- Use the analogies we already know about working with paper...
  - Use files and folders for organization
  - View your hard disks as a filing cabinet
  - View your trash as destruction

### Do Not Exceed Existing Retention Schedules

| CLASS | DESCRIPTION     | CLASSIFICATION  | RETENTION | DISPOSITION |
|-------|-----------------|-----------------|-----------|-------------|
| 4301  | GENERAL PURPOSE | GENERAL PURPOSE | 1 Y       | DISPOSABLE  |
| 4302  | GENERAL PURPOSE | GENERAL PURPOSE | 1 Y       | DISPOSABLE  |
| 4303  | GENERAL PURPOSE | GENERAL PURPOSE | 1 Y       | DISPOSABLE  |
| 4304  | GENERAL PURPOSE | GENERAL PURPOSE | 1 Y       | DISPOSABLE  |
| 4305  | GENERAL PURPOSE | GENERAL PURPOSE | 1 Y       | DISPOSABLE  |
| 4306  | GENERAL PURPOSE | GENERAL PURPOSE | 1 Y       | DISPOSABLE  |

- Utilize your existing schedules where you can
- Develop specialized retention schedules for unique digital content

### Centralize, Centralize, Centralize!

- Utilize a central document repository for your workgroup or department
- Implement the policy that a "record declaration" means it goes to the server
- All other documents are "working papers" to be disposed as soon as practical

### Categorize, Categorize, Categorize!


- Use existing tools
  - Series
  - Existing filing systems
- Develop new tools
  - Naming Conventions
  - Hierarchies
  - Taxonomies
  - Keywords
  - Search terms
  - Indexes
  - Folders within folders
- Match existing file plans
  - Parallel systems
  - Parallel retention
  - Parallel disposition

### Document, Document, Document!

- Use your existing Records Management Manual
- Explicitly state that the policies in it apply to digital content
- Note specialized digital retention schedules
- Document retention and disposition actions
  - You can utilize the forms from Session I: <http://www.dartmouth.edu/~recmgmt/forms.html>

### E-Mail Management

- Recognize that e-mail, IM and chat are special challenges, with high liability




...In July, a hedge fund manager at San Francisco company Azure Capital Partners LP reportedly IMed his AOL buddy list with information about PeopleSoft Inc. and was later accused of undermining PeopleSoft's stock price. ...the manager either said to buddy list members that regulators were looking into accounting irregularities at a PeopleSoft subsidiary or asked if that were so, and also raised the possibility that PeopleSoft was being sued by a customer for \$50 million. The IM turned into a rumor. PeopleSoft got its' hands on the message and concluded that it was the cause of what turned out, over the course of a few days, to be a \$1.7 billion drop in the company's market value.

—Lisa Vaas:E-Week: "IM Genie out of the Bottle", 12/31/2001


### E-Mail Management

- Recognize that e-mail, IM and chat are special challenges, with high liability
- Watch what you say!
- Be discriminating in the records declaration
- Delete regularly
- Don't save to disk




### Manage Duplication

- Identify the "Record Copy"
- Dispose of duplicates and drafts along with or before the record copy
- Think twice before preserving incoming documents
  - Is this a record in the originating location?
  - Can that copy suffice?
  - Do you need a copy as well?



### Snapshot "Fluid Files"

- What is a "Fluid File"?
- Databases, primarily
  - Small (personal or departmental)
  - Word or Excel
  - Any collection of information that is updated
- Determine snapshot schedule



### Perform Regular Disposition Rounds

- Minimize your legal liability
- Don't get caught with documents outside of your retention schedule!
- Strive for secure deletion
  - DOD 5520.22-M
- At least empty the Recycle Bin!
- Keep up with it
- Document your actions



Recycle Bin

### Protect Your Vital Records: BACKUP!!!

- Backup is essential!
- Methodologies
  - Tape
  - CD
  - Data Warehouse or Server
  - Net Backup or on your own
- Regularity
  - How much can you afford to lose?
- Off-Site




### Protect Your Vital Records: BACKUP!!!

- But remember: A backup of a record is itself a record!
- Backups can easily violate a retention schedule
- Don't maintain an inappropriately long line of old backups



### PDF Forms

<http://www.dartmouth.edu/~library/recmgmt/forms.html>





**What We Have Learned...**

- What is a Record?
- Digital Record Keeping: The Challenges of a Changing World
- Overview of Key Emerging Technologies and Issues
- Some Practical Advice



**Questions and Discussion**

