Separating Content from Presentation:

What We Don't Know (Because We Can't See It) Can Hurt Us

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XML.Gov

<ET.gov/>
EmergingTechnology.gov

Some Pertinent Issues

- Separation of Content from Presentation
- Databases Versus Documents
- Metadata and Management
- Demystification of Knowledge Management
- Recent GCN Coverage
- Technical Standards
  - Role of XML
- Data, Management & Reality
- Federal Enterprise Architecture (FEA)
  - Data Reference Model (DRM)
- Human Factors

Separation of Content from Presentation
Invitation for Waste, Fraud & Abuse

- **How do you know what you signed?**
  - ‣ Font same color as background
- **PDF-A**
  - ‣ ISO standard for archival records
  - ‣ AIIM - http://www.aiim.org/standards.asp?ID=25013
- **Extensible Forms Description Language (XFDL)**
  - ‣ W3C Note - http://www.w3.org/TR/1998/NOTE-XFDL-19980902
  - ‣ IBM acquisition of PureEdge
- **XML Paper Specification (XPS)**
  - ‣ Microsoft - http://www.microsoft.com/whdc/xps/default.mspx
- **Legal presentation**
  - ‣ Four corners of the document

Documents Versus Databases

- ## Databases
  - Dynamic, manipulation of data
  - Single points of failure
  - Insiders have motives
  - Attractive targets for hackers (ID theft, etc.)
  - Opposite of requirements for records management

- ## Documents
  - Data in context
  - Without context data is meaningless, or worse
  - Four corners
    - Legal presentation
  - Attributes of record
    - Integrity, reliability, authenticity, usability (ISO 15489)
  - Metadata specifies attributes (quality) of record

Metadata & Management

- In IT systems, Metadata = Management
  - ‣ Enables automation of management functions

- Little or no metadata means:
  - ‣ Little or no management
  - ‣ Records of poor and uncertain *quality*

- *How much metadata (management)?*
  - ‣ Before reaching point of diminishing returns
  - ‣ Beneficiaries not bearing costs
  - ‣ Embedded versus external metadata

Demystification of KM

- Knowledge Management = Profiles of:
  - Records (explicit knowledge)
  - People (tacit knowledge)

- Profiles = Metadata

- Metadata in XML = Interoperability

Management of Knowledge

- ## Inappropriate to try to "manage" behavior
  - ‣ Demeaning to law-abiding adults
  - ‣ People are NOT human "capital"
  - ‣ At least not in a free and open society

- ## Inappropriate NOT to manage records
  - ‣ If a mind is a terrible thing to waste, what about the collective knowledge and wisdom of humankind throughout history?
  - ‣ If records properly managed, behavior will take care of itself.

Recent Relevant GCN Articles

- GAO: Many agencies' financial management systems inadequate, 9/22/05

- SE Linux embarks on Common Criteria testing. 9/27/05

- GPO fast tracks FDSys Project, 10/6/05

GPO FDsys Project

- The Government Printing Office is setting an aggressive timetable for its massive project to digitize nearly every federal document published since the birth of the nation.

  – http://www.gcn.com/vol1_no1/daily-updates/37227-1.html

Stop waste of .gov information through loss &/or inaccessibility

SELinux

- "… moving away from discretionary access control, so the permissions for usage are out of the hands of users and rogue programs …"
  - http://www.gcn.com/vol1_no1/daily-updates/37131-1.html

Records management system cannot be secure if operating system is not.

Financial Management

- "… Auditors need to perform more comprehensive examinations …"

- "Problems included nonintegrated financial management systems, inadequate reconciliation procedures, inaccurate or slow recording of financial information, lack of adherence to federal accounting standards and weak system security …"
  - http://www.gcn.com/vol1_no1/daily-updates/37080-1.html

XML enables comprehensive, integrated, and automated auditing and reconciliation in real time

GAO on Financial Management

- … all 16 agencies with noncompliant systems lacked accurate and timely reporting …

- DoD reported $204.8 billion in "unsupported accounting entries" …

- IRS has info to determine costs, albeit in widely distributed systems that cannot share data …

- Security control weaknesses "place vast amounts of government assets at risk of inadvertent or deliberate misuse" …
  - ▶ GAO-05-881 FFMIA Report, September 2005

Such systems invite waste, fraud, and abuse

Technical Standards

- ISO 15489
  - International standard for records management
- DoD Std.5015.2
  - Design requirements for records management applications
- AIIM iECM
  - Interoperable enterprise content management
- Federal Enterprise Architecture (FEA)
  - Data Reference Model (DRM)
- Extensible Markup Language (XML)

Role of XML

- **Bridges the gap between documents & databases**
  - ▸ Original records can be maintained in inviolate XML format throughout full life-cycles
  - ▸ Databases can be automatically audited by comparing to original XML records

- **Reduces risk**
  - ▸ Plain text
    - – WYSWYG
  - ▸ Eliminates single points of failure (receipts & COOP)
  - ▸ International standard, nonproprietary lingua franca
  - ▸ Interoperability at data/record layer
    - – Short- & long-term

IBM Keynote @XML 2005

Robert Picciano, VP of Data Management

- XML is fabric of Service-Oriented Architecture (SOA)

- Strength of relational databases is for **static** data
  - ‣ Schema hard to change

- XML databases good for frequently changing data
  - ‣ Don't require a schema (Ronald Bourret)

- *Shredding* records into RDMSs is not the only alternative

- ROI has new meaning for many IBM customers:
  - ‣ Risk of Incarceration

- Little or no litigation in EDI world
  - –Bring benefits to smaller companies through XML?
    Jane Winn, U of WA School of Law

FEA DRM

- Governmentwide profile of data and information
  - ‣ Description
  - ‣ Context
  - ‣ Sharing

- XML schema
  - ‣ Enable sharing of DRM profiles

- Discovery, access & use of records via:
  - ‣ Querying elements of metadata profile
  - ‣ Browsing context/taxonomies

Data, Records & Reality

- Data is NOT reality
  - Except to the degree we may have agreed to conduct business on the basis of records having the attributes outlined in ISO 15489
    Data & Reality, William Kent
    http://mysite.verizon.net/ambur/datareality.htm

- Records are best "test" of reality
  - Can have very good eRecords ... if we wish

- Records & people lacking accessible profiles cease to exist in the new reality of cyberspace
  - Why would organizations pay anyone who does not exist in the corporate knowledge repository?
  - Sources of power
    http://mysite.verizon.net/ambur/French&Raven.htm
  - Human factors
    http://mysite.verizon.net/ambur/index.html#recordkeeping

Human Factors

- Sins of Memory
- Psychology of Deceit
- Everyday Irrationality
- Logic of Failure
- Oz Principle

http://mysite.verizon.net/ambur/index.html#recordkeeping

Sins of Memory

... we tend to think of memories as snapshots from family albums that, if stored properly, could be retrieved in precisely the same condition in which they were put away. But we now know that we do not record our experiences the way a camera records them. Our memories work differently. We extract key elements from our experiences rather than retrieve copies of them. Sometimes in the process of reconstructing we add on feelings, beliefs, or even knowledge we obtained after the experience. In other words, we bias our memories of the past by attributing to them emotions or knowledge we acquired after the event.

Daniel L. Schacter
http://mysite.verizon.net/ambur/MemorySins.htm

We don't want to be confronted with evidence that conflicts with what we think we know.

Psychology of Deceit

...everyone lies; the difference among people is the frequency, target, and degree of those lies...

...exaggerations frequently used in day-to-day conversations... often develop the quality of a personal myth ... when frequently retold, begin to have the semblance of real memories ...

... the most important lesson we can learn is how we use lies to deceive ourselves ...

Memory is what we are ...

Charles Ford
http://mysite.verizon.net/ambur/Lies.htm

We don't want to expose our own myths to the harsh light of reality and thus threaten our sense of self

Everyday Irrationality

We can generally recognize important alternatives and hence correct irrational conclusions when these alternatives are made clear. The problem is that we ourselves often do not generate enough alternatives and hence do not reach the rational conclusion.

Robyn Dawes
http://mysite.verizon.net/ambur/irrationality.htm

... the sources of power needed in natural settings are usually not analytical at all ... Decision makers usually look for the first workable option they can find, not the best option... Human beings are fairly good at recognizing patterns but may prefer to ignore deviations from the norm since stressful analysis of alternatives may be required to understand them ...

Gary Klein
http://mysite.verizon.net/ambur/rpd.htm

We prefer not to incur the stress of confronting our irrational thoughts and considering all of the alternatives

Logic of Failure

- Real-world decision-making processes are rarely well documented, and it is hard, if not impossible, to reconstruct them.
- Reports on real processes are often unintentionally distorted or even intentionally falsified.
- Failure does not strike like a bolt from the blue; it develops gradually according to its own logic.
- People court failure in predictable ways.
- People are most inclined to insist they are right when they are wrong and when they are beset by uncertainty.
- The mistake is less not knowing than not wanting to know.
- People look for and find ways to avoid confronting the negative consequences of their actions.

Dietrich Dorner
http://mysite.verizon.net/ambur/failure.htm

Oz Principle

... many people in American organizations, wanting to feel good about themselves when results don't materialize, would rather offer excuses for why they didn't get the expected results than find ways to overcome the obstacles keeping them from those results ...

... the majority of workers who feel they have no control over their jobs *choose* to feel that way. Rather than accept accountability for making things different and better, they actually behave like victims of circumstance.

Connors, Smith and Hickman
http://mysite.verizon.net/ambur/oz.htm

Questions

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