

Have Your Data Management Best Practices Changed to Reflect Data Management in the 21st Century?

CAS RPMS – Chicago – March 2010

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Agenda

- Background Information
- Data
- Uses
- Strategies and Plans
- Summary
- Open Discussion/Questions

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Panelists

- Art Cadorine, ISO
- Pete Marotta, ISO
- Tracy Spadola, Teradata

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Background Information

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A Look Back

- 1343: first formal policy written in Italy
- 1494: double entry bookkeeping established
- 1726: Sun Fire Office established
- 1736: Union Fire (Ben Franklin) established
- 1779: standard marine policy established
- 1792: states started to impose limitations on company activities and investments
- 1824: NY established a tax on premiums
- **1828: Annual Statement concept is created in NY with 13 categories of questions**
- 1850: A & H coverage in US
- 1851: states start insurance company examinations
- **1853: NY annual report expanded requires more data**
- 1871: Lloyds established
- **1871: National Convention of Insurance Commissioners (NCC) - fire and marine blank**
- 1873: MA adopts first standard fire policy
- 1898: auto liability coverage
- 1899: auto collision coverage
- 1902: auto property damage coverage
- 1911: first workers' comp policy
- 1911: NCK: model reserve law
- **1922: National Council on Compensation Insurance established**
- **1922: NY law requires insurers to file premiums and loss experience in conformance with approved classifications**
- **1923: NY requires Casualty Experience Exhibit**
- 1944: South East Underwriters case
- **1945: McCarran Ferguson enacted by Congress**
- **1948: states pass regulations/laws regarding statistical plans, rates and rules**
- **1949: Insurance Expense Exhibit introduced**
- **1950: NAAC adopts multi-line blank**
- 1967: ACOHD formed to create standardized operational forms
- 1969: Schedule P changed to calendar/accident year basis
- 1971: ISO formed from several national insurance service organizations
- 1983: Insurance Value Added Network (IVANS): first batch processing via IVANS
- 1995: EU directive on data protection
- 1996: HIPAA and FCRA passed by Congress
- 1996: Solvency II in EU
- 1966: Graham-Leach-Bliley passed by Congress
- 2002: Sarbanes-Oxley passed by Congress
- 2003: CA data breach law

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How Much Information Is There in the World?

- ▶ Michael Lesk (*Network World*, October 28, 2003)-
 - including sounds and images there are thousands of petabytes of information
 - T.K. Landauer - "How much do people remember?", *Cognitive Science*, Oct/Dec 1986: the human brain holds 200 MB of information

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Table 1.1: How Big is an Exabyte?

Kilobyte (KB)	1,000 bytes OR 103bytes 2 Kilobytes: A Typewritten page. 100 Kilobytes: A low-resolution photograph.
Megabyte (MB)	1,000,000 bytes OR 10 ⁶ bytes 1 Megabyte: A small novel OR a 3.5 inch floppy disk. 2 Megabytes: A high-resolution photograph. 5 Megabytes: The complete works of Shakespeare. 10 Megabytes: A minute of high-fidelity sound. 100 Megabytes: 1 meter of shelved books. 500 Megabytes: A CD-ROM.
Gigabyte (GB)	1,000,000,000 bytes OR 10 ⁹ bytes 1 Gigabyte: a pickup truck filled with books. 20 Gigabytes: A good collection of the works of Beethoven. 100 Gigabytes: A library floor of academic journals.
Terabyte (TB)	1,000,000,000,000 bytes OR 10 ¹² bytes 1 Terabyte: 50000 trees made into paper and printed. 2 Terabytes: An academic research library. 10 Terabytes: The print collections of the U.S. Library of Congress. 400 Terabytes: National Climatic Data Center (NOAA) database.
Petabyte (PB)	1,000,000,000,000,000 bytes OR 10 ¹⁵ bytes 1 Petabyte: 3 years of EOS data (2001). 2 Petabytes: All U.S. academic research libraries. 50 Petabytes: Production of hard-disk drives in 1995. 200 Petabytes: All printed material.
Exabyte (EB)	1,000,000,000,000,000,000 bytes OR 10 ¹⁸ bytes 2 Exabytes: Total volume of information generated in 1999. 3 Exabytes: All words ever spoken by human beings.
Zettabyte (ZB)	1,000 EBs

How Much Information Is There in the World?

- ▶ University of California, San Diego
 - June 2008 announced a 3 year study to quantify the amounts and kinds of information being produced worldwide
 - The “How Much Information?” study will be completed by a multi-disciplinary, multi-university faculty team supported by corporate and foundation sponsorship
 - <http://gic.ucsd.edu>

How Much Information Is There in the World?

- ▶ University of California, Berkeley
 - “How Much Information 2003?”, senior researchers Peter Lyman and Hal R. Varian
 - Print, film, magnetic and optical:
 - 5 exabytes in 2002
 - 92% on magnetic media
 - Doubles every 3 years/quadruples in 2 years
 - Telephone, radio, TV, Internet: 18 exabytes in 2002
 - <http://www2.sims.berkeley.edu/research/projects/how-much-info-2003/>

Table 1.2: Worldwide production of original information, if stored digitally, in terabytes circa 2002. Upper estimates assume information is digitally scanned; lower estimates assume digital content has been compressed

Storage Medium	2002 Terabytes Upper Estimate	2002 Terabytes Lower Estimate	1999-2000 Upper Estimate	1999-2000 Lower Estimate	% Change Upper Estimates
Paper	1,634	327	1,200	240	36%
Film	420,254	76,69	431,690	58,209	-3%
Magnetic	5167130	3,416,230	2,779,760	2,073,760	87%
Optical	103	51	81	29	28%
TOTAL:	5,609,121	3,416,281	3,212,731	2,132,238	74.5%

Table 1.3: Summary of electronic flows of new information in 2002 in terabytes

Medium	2002 Terabytes
Radio	3,488
Television	68,955
Telephone	17,300,000
Internet	532,897
TOTAL	17,965,340

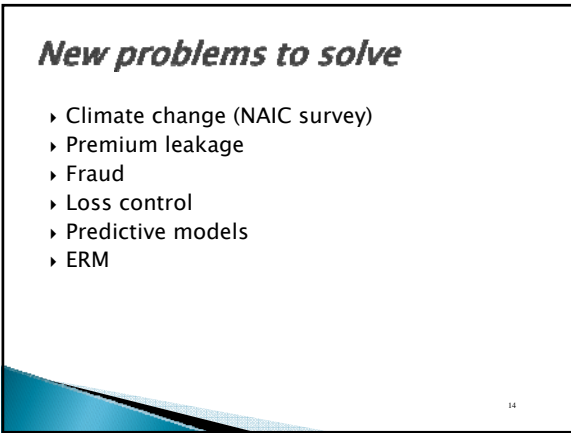
The 21st Century Data Manager

From insurance data managers to enterprise data managers, managing many types of data including insurance data



Data

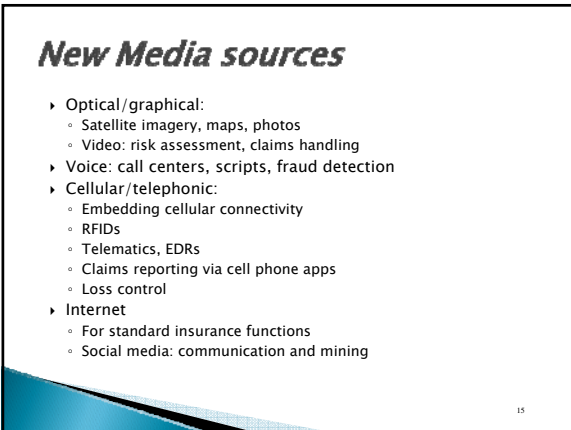
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New problems to solve

- ▶ Climate change (NAIC survey)
- ▶ Premium leakage
- ▶ Fraud
- ▶ Loss control
- ▶ Predictive models
- ▶ ERM

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New Media sources

- ▶ Optical/graphical:
 - Satellite imagery, maps, photos
 - Video: risk assessment, claims handling
- ▶ Voice: call centers, scripts, fraud detection
- ▶ Cellular/telephonic:
 - Embedding cellular connectivity
 - RFIDs
 - Telematics, EDRs
 - Claims reporting via cell phone apps
 - Loss control
- ▶ Internet
 - For standard insurance functions
 - Social media: communication and mining

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Expanded scope

- ▶ Privacy: in sync with Chief Privacy Officer
- ▶ C-level: in sync with business strategies
- ▶ Quality
 - Broader application to new uses of data,
 - More emphasis on external and an enterprise view
- ▶ Standards implementation

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New data types

- ▶ GIS
- ▶ GPS
- ▶ Traffic
- ▶ Weather
- ▶ Health/Medical
- ▶ Pharma
- ▶ Risk components

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New tools/techniques

- ▶ Metadata repositories, data dictionaries, MDM,
- ▶ ETL
- ▶ Data profiling, audits and controls
- ▶ Data and text mining
- ▶ Entity resolution
- ▶ Visualization
- ▶ Longitudinal functionality
- ▶ Encryption

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Uses

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Actuaries

- ▶ Value of Predictive modeling dependent on Quality Information responding to what is needed
 - Underwriting
 - Rating
 - Claims administration
 - Fraud detection and prevention
 - Operations
- ▶ Reserving Opinions and being held legally responsible for the data that is being used
- ▶ Ratemaking and adequate, responsive classification systems
- ▶ Current not a year old to respond to changing situations
- ▶ Catastrophe information

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Financial Officers

- ▶ Sarbanes Oxley requirements
- ▶ SEC Financial Reports
- ▶ Solvency II requirements
- ▶ Risk Based Capital Requirements

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Underwriters/Business Managers

- ▶ Increased automation
- ▶ Accurate experience modifications
- ▶ Individual insured pricing
- ▶ Current market conditions
- ▶ Proper exposure
 - Premium leakage
 - Pre-fill
- ▶ Claims management
- ▶ Loss Control
- ▶ Distribution channels/new markets

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Strategies and Plans

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What is Strategic Data Planning?

- ▶ An alignment of Business Vision, Mission, Goals and Initiatives to the underlying data and information of an organization
- ▶ Requires an Understanding of:
 - Your Direction in 18-24 months and in five years
 - Industry direction in 18-24 months and in five years
 - Opportunities for your organization
 - Target benchmarks
 - Data and Information
 - Available
 - Needed
 - Data Gaps

Data – treated like all corporate assets

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Why Strategic Data Planning?

- ▶ Facilitate alignment and traceability of significant IT investments to their respective business drivers
 - Provide a process and a set of tools to facilitate Business and IT planning and decision-making
 - Maintain a common and consistent view of data that is shared company wide
 - Aids good corporate governance and promotes data transparency
- ▶ Poorly-managed data WILL result in faulty business decisions

Data and information support corporate decision-making and provide competitive advantage

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Components of an Enterprise Data Strategy

The Rules, Tools, and Schools...

Organizational level:

- ▶ Information Governance
- ▶ Data Stewardship
- ▶ Data Architecture
- ▶ Data and Process Models
- ▶ Training and Education

Data level :

- ▶ Data Element Management
- ▶ Data Quality
- ▶ Data Standards
- ▶ Data Privacy & Security

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Key Components of Strategic Data Planning

- ▶ Strategic Data Planning is primarily a Business, not an IT function.
 - IT critical to any enterprise data strategy.
- ▶ Actuaries are uniquely positioned in an organization – data savvy as data definers and users, senior business level visibility, etc. – to be prime movers in Strategic Data Planning.

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Best Practices

- Establish a Corporate or Chief Data Steward
- Foster data and data quality standards
- Structure organization to promote good data management and data quality
- Data flows from business processes
- Manage DQ as close to the source as possible
- Establish processes to maximize data quality and utility
- Design and maintain data, systems and reporting mechanisms in a manner that promotes good data management and data quality

Strategic Data Planning & Enterprise Risk Management

- An understanding of risk exposures *across and beyond the organization*
 - Market Risk, Credit Risk, Operational Risk, as well as Insurance Risk
 - What impact does your investment portfolio have on your operations
 - What impact does fluctuating currency have?
 - What risks are your key stakeholders subject to?
- Enterprise Risk Management brings in a “new” level and source of data and information that needs to be managed

Summary

What You Should Be Doing to Be a 21st Century Data Manager

- ▶ Promote data governance within the organization
- ▶ Define and follow enterprise data strategies
- ▶ Support the interoperability of data within the organization and with trading partners
- ▶ Metadata, metadata, metadata, ...
- ▶ Know and vet third party data resources

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What You Should Be Doing to Be a 21st Century Data Manager

- ▶ Control access to your granular data resources
- ▶ Develop and implement comprehensive and flexible data quality measures
- ▶ Remember that data management applies to structured and unstructured data sets
- ▶ Require adherence to data management best practices not only at the corporate level but also at the desk top level

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Open Discussion/Questions

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