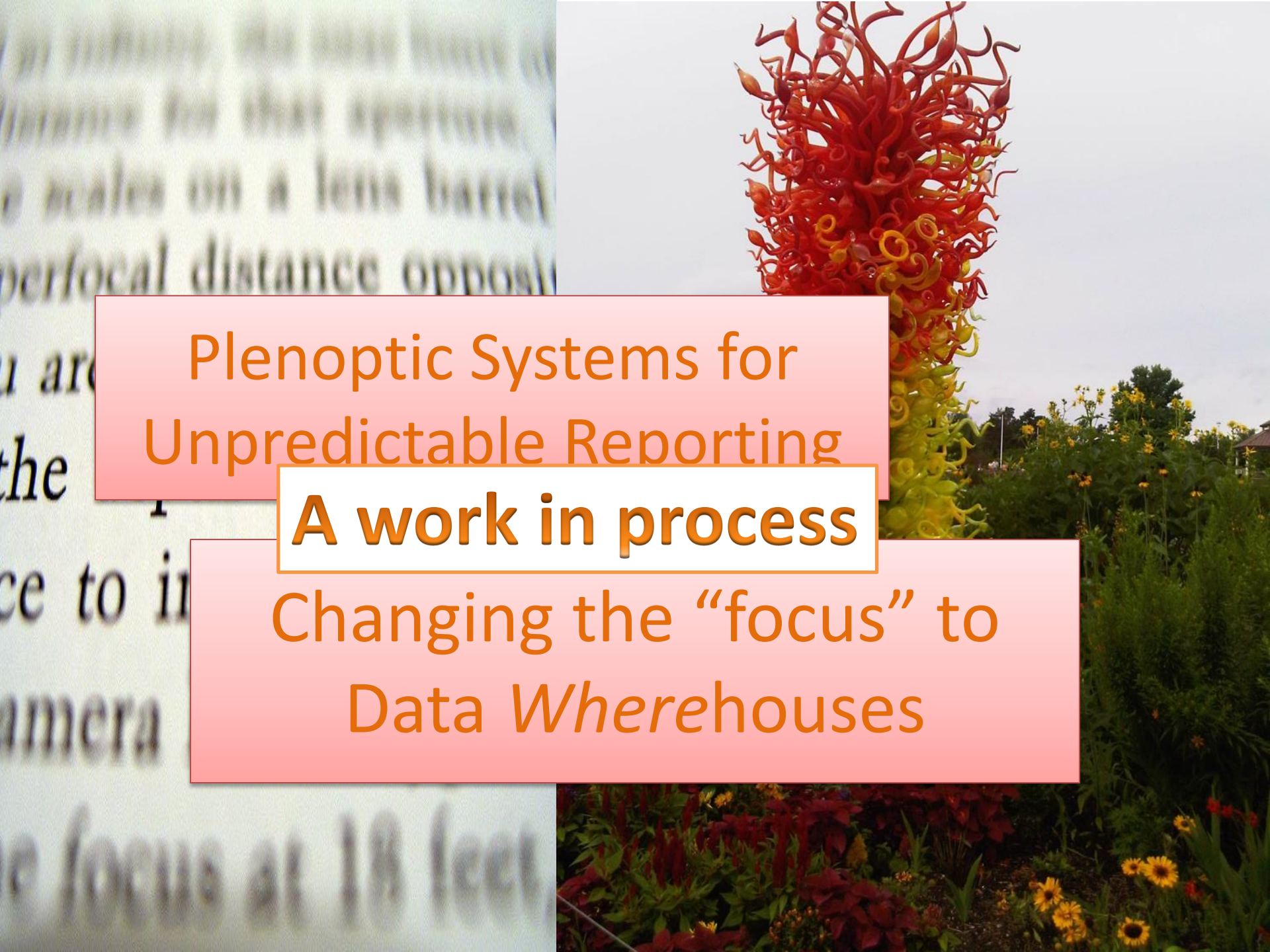

Plenoptic Systems for Unpredictable Reporting
A work in process
Changing the “focus” to Data *Where*houses

As Always …

The opinions in this presentation do not represent those of my employer; they are mine alone.

In Brief

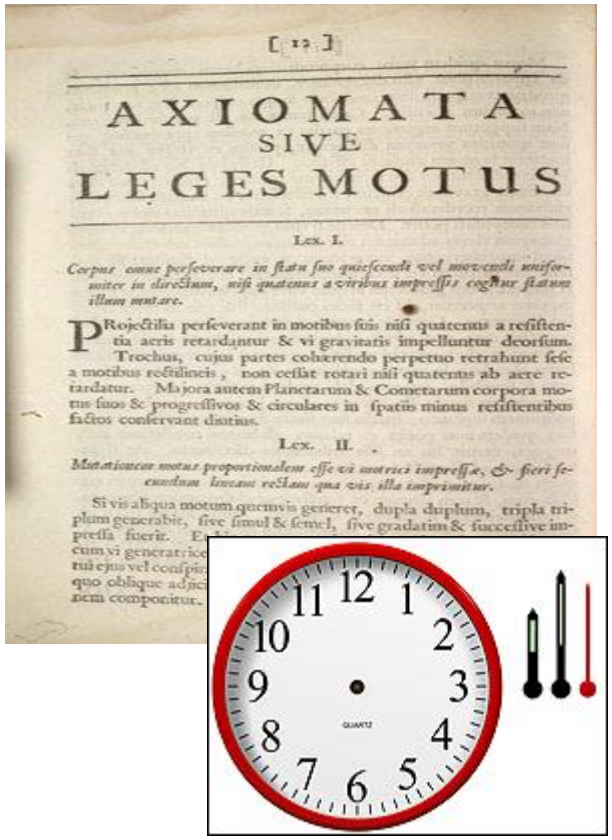
- As we have previously noted
  - Today's **periodic reporting** model is to **classical** physics as the **CA** model is to **quantum** physics
- Yesterday's underlying systems captured "so much" and no more, based on *predicable* end **users** and reporting **needs**
- Ongoing systems need to
  - Capture what's unique and propietary
  - Know where to get additional information on an as-needed basis
  - Communicate it as a whole using standardization
- Technology and standardization are on-the-way

The Analogy Continues …

- For those new(er) to WCARS
  - 2006 presentation: “On a Heuristic Viewpoint on Phynancial Statements and Physics: Information Friction, Newton’s Laws and Beyond”
  - “You can find a parallel with the world of physics when considering the change in thought necessary to develop and audit systems capable of supporting Continuous Reporting and Auditing. Classical physics (Newton, Maxwell) had proven itself; it just wasn’t able to properly describe nature as you moved to the atomic and subatomic level. Likewise, traditional recording and audit techniques may need to give way to discreteness and indeterminism as we move to CA and *Data Level Assurance* to be successful.”

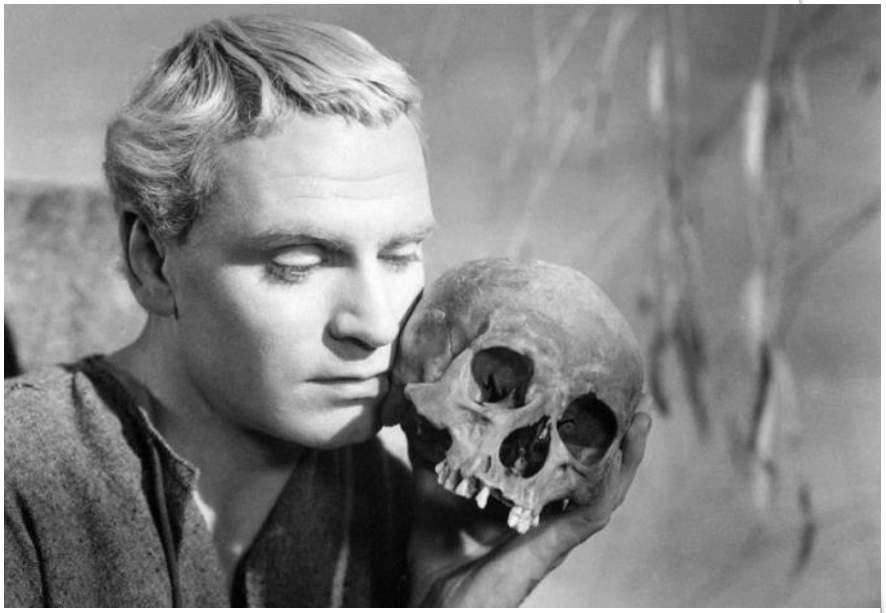
Business Reporting is Like Light

- We have noted previously
  - FR systems without period end closes are like a clock without hands – we are missing natural stopping points, familiar periods to work on things, acceptable points to stop and take stock
  - Duality of light, reporting and XBRL
    - Waves versus particles
  - Observation (“Value”-based reporting) is limited in many ways

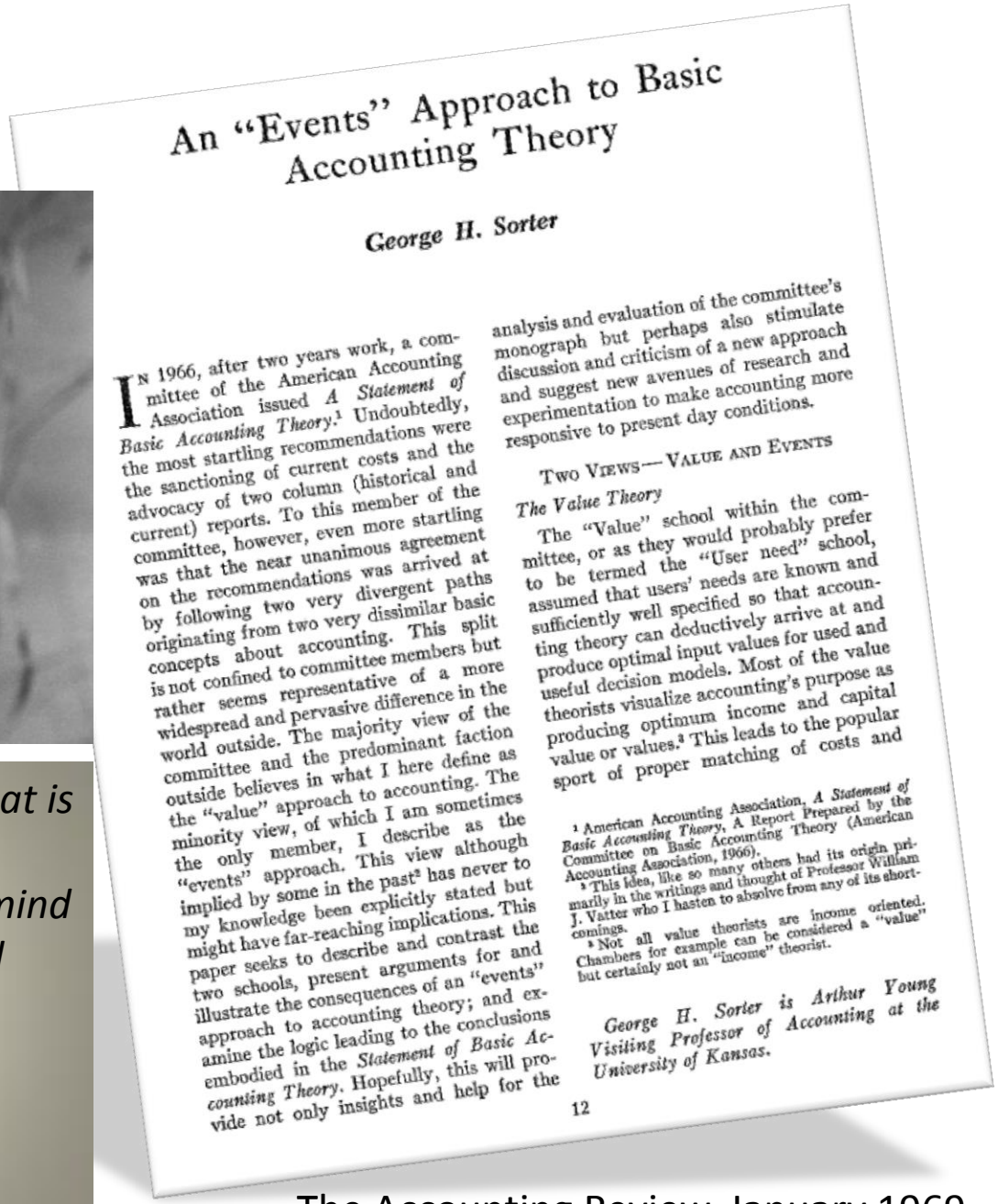


What tHe xβяГ ?

Looking Back



To aggregate, or not to aggregate … that is the question:
Whether 'tis more transparent in the mind to provide "Events" of underlying detail for stockholders to make outrageous Fortunes
Or to summarize a Sea of Troubles
And by the "Value" report them.



An "Events" Approach to Basic Accounting Theory

George H. Sorter

In 1966, after two years work, a committee of the American Accounting Association issued *A Statement of Basic Accounting Theory*.[1] Undoubtedly, the most startling recommendations were the sanctioning of current costs and the advocacy of two column (historical and current) reports. To this member of the committee, however, even more startling was that the near unanimous agreement on the recommendations was arrived at by following two very divergent paths originating from two very dissimilar basic concepts about accounting. This split is not confined to committee members but rather seems representative of a more widespread and pervasive difference in the world outside. The majority view of the committee and the predominant faction outside believes in what I here define as the "value" approach to accounting. The minority view, of which I am sometimes the only member, I describe as the "events" approach. This view although implied by some in the past[2] has never to my knowledge been explicitly stated but might have far-reaching implications. This paper seeks to describe and contrast the two schools, present arguments for and illustrate the consequences of an "events" approach to accounting theory; and examine the logic leading to the conclusions embodied in the *Statement of Basic Accounting Theory*. Hopefully, this will provide not only insights and help for the analysis and evaluation of the committee's monograph but perhaps also stimulate discussion and criticism of a new approach and suggest new avenues of research and experimentation to make accounting more responsive to present day conditions.

Two Views — Value and Events

The Value Theory

The "Value" school within the committee, or as they would probably prefer to be termed the "User need" school, assumed that users' needs are known and sufficiently well specified so that accounting theory can deductively arrive at and produce optimal input values for used and useful decision models. Most of the value theorists visualize accounting's purpose as producing optimum income and capital value or values.[3] This leads to the popular sport of proper matching of costs and

[1] American Accounting Association, *A Statement of Basic Accounting Theory*, A Report Prepared by the Committee on Basic Accounting Theory (American Accounting Association, 1966).

[2] This idea, like so many others had its origin primarily in the writings and thought of Professor William J. Vatter who I hasten to absolve from any of its shortcomings.

[3] Not all value theorists are income oriented. Chambers for example can be considered a "value" but certainly not an "income" theorist.

George H. Sorter is Arthur Young Visiting Professor of Accounting at the University of Kansas.

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The Accounting Review, January 1969

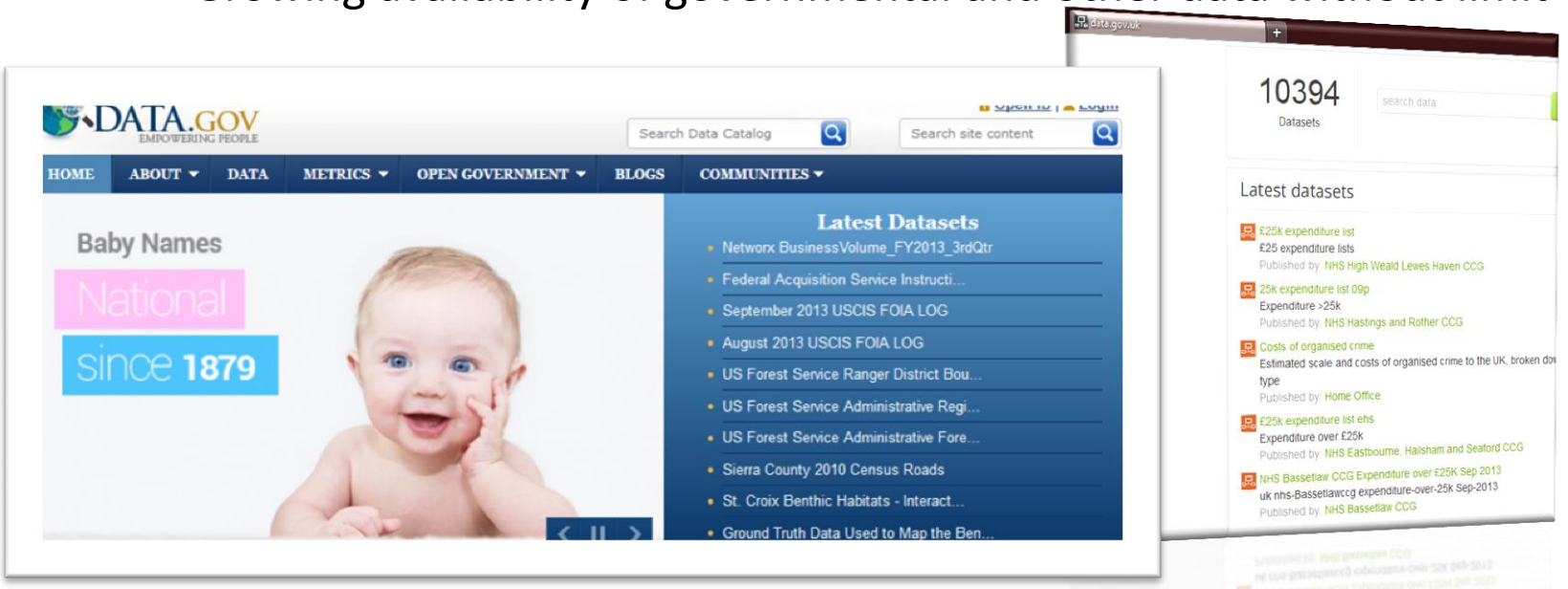
Taking a Page from Photography

- Why focus when you don't know what will interest you
  - Lytro
- In fact, why even **aim?**
  - Theta

Grab the *event* and make it accessible

Data

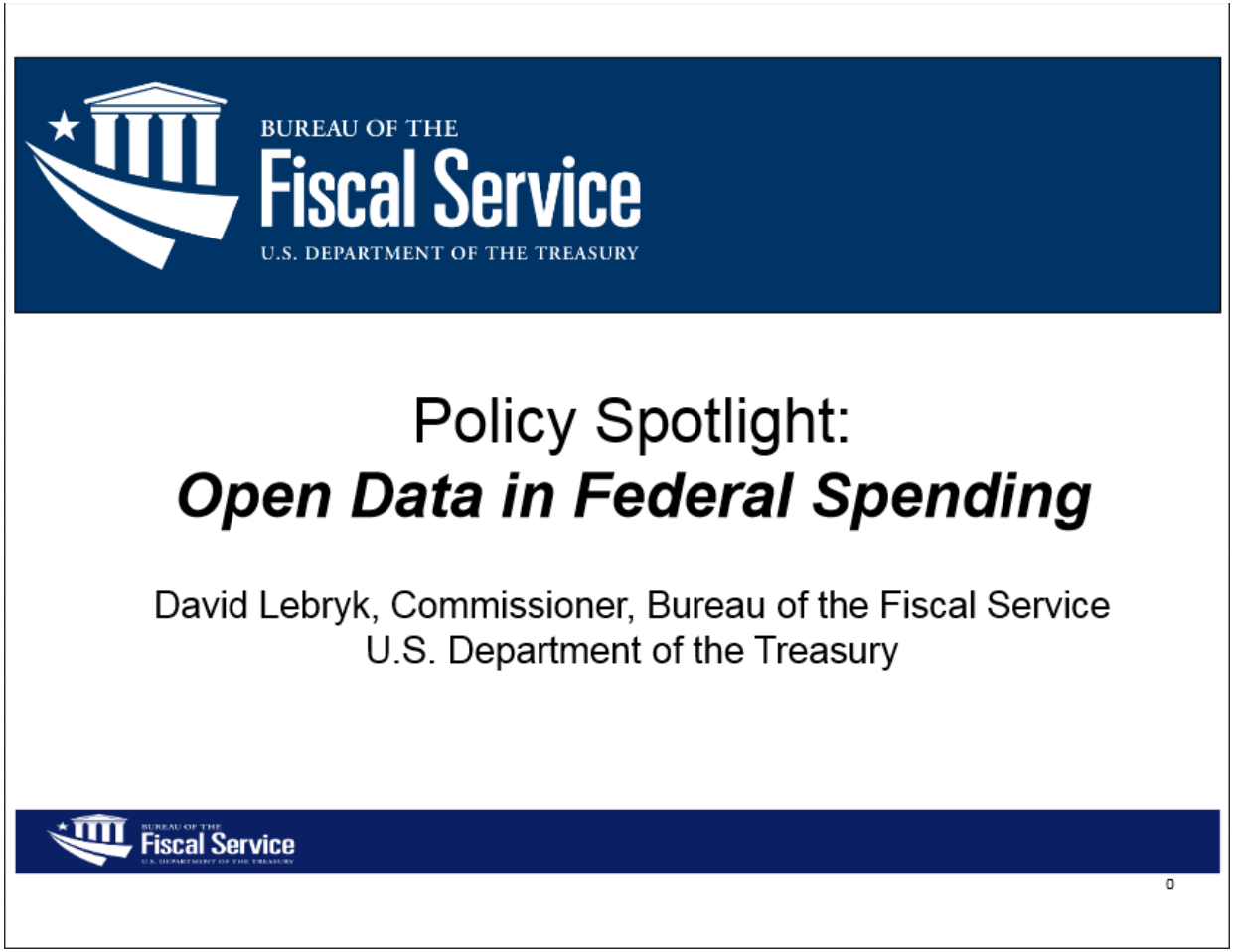
- Big Data
  - The stuff your systems today can't store or process like it does traditional structured data
- Big data
  - Collecting and using a lot more information from many more sources than we do today
- Open data
  - Growing availability of governmental and other data without limit



Plenoptic Systems

- Plenoptic
  - of or relating to all the light, travelling in every direction in a given space.
- Plenoptic Reporting Systems
  - (Capturing and) Making available all of the relevant information without a prior knowledge of expected use or user
  - Not a data warehouse, but a data *where*house
  - A corollary to Quantum Reporting (WCARS 2006)

Adding Intelligence to ~~Accounting~~ Business Reporting



http://www.datacoalition.com/content/files/lebryk.pdf

Treasury Vision

Guiding Principles for Treasury

Concept of "Architecting for Unpredictability"

- Future users & uses can't be predicted (i.e., proposed Digital Accountability & Transparency Act (DATA Act))
- Timely, reliable, secure and consumable data will be expected
- Authoritative standards-based virtual repository
- Data transparency and its usefulness should be treated as a public good

Once Again

- Intelligent Data
- Based on standards
- Without knowing what the future use or who the future users are

“Now”’s the Time for Real-time

“[W]e need to move toward a **dynamic model of current disclosure** of unquestionably material information.”

Harvey Pitt, Pre-”E”

http://www.sec.gov/news/speech/spch523.htm

January 10, 2002

SEC. 409. REAL TIME ISSUER DISCLOSURES

Section 13 of the Securities Exchange Act of 1934 (15 U.S.C. 78m), as amended by this Act, is amended by adding at the end the following:

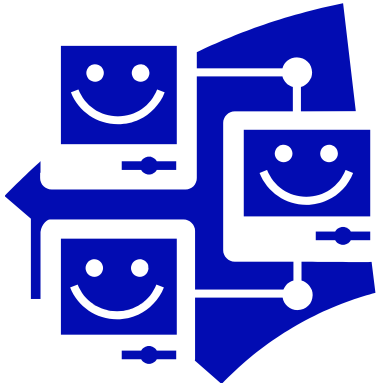
*‘‘(l) REAL TIME ISSUER DISCLOSURES.—Each issuer reporting under section 13(a) or 15(d) shall disclose to the public on a rapid and current basis such additional information concerning **material changes in the financial condition or operations** of the issuer, in plain English, which may include **trend** and **qualitative** information and **graphic** presentations, as the Commission determines, by rule, is necessary or useful for the protection of investors and in the public interest.’’*

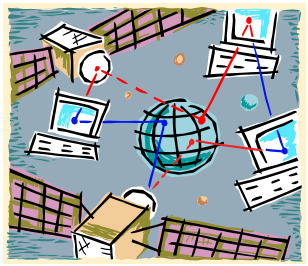
"in plain English, which may include trend and qualitative information and graphic presentations"

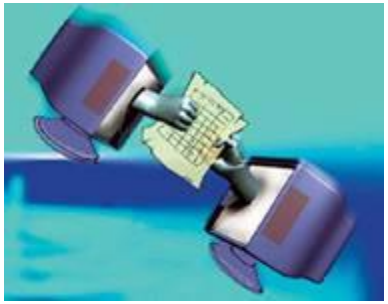
Deliver real-time XML data stream; On demand Web-services available data

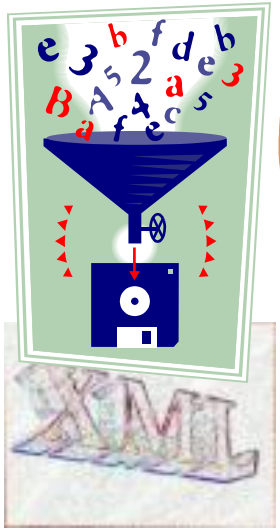
using secure and not-so-secure links

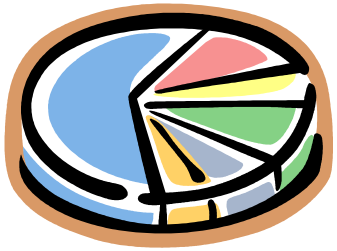
Bring together information from various sources with all version control, security, etc.

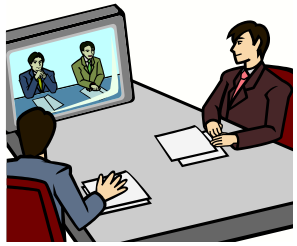


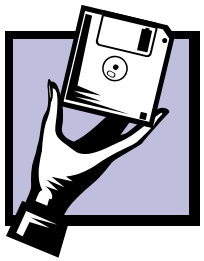


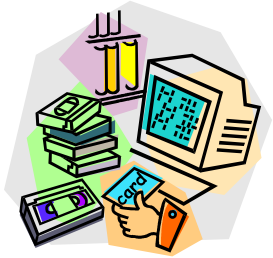


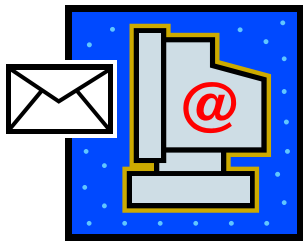




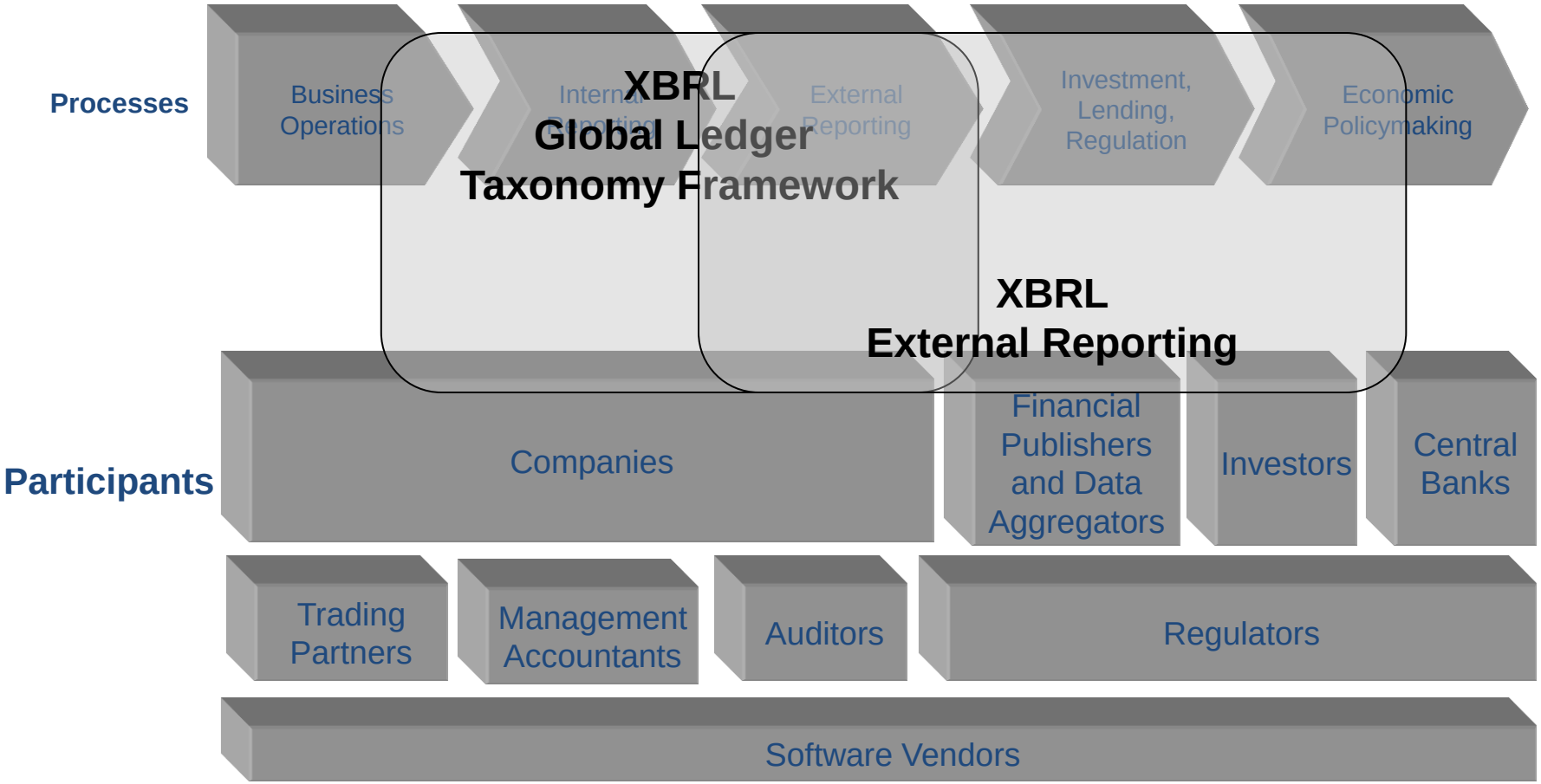








Scope and role of XBRL



The Great Reconciler

Frictionless Data

Interoperability and integration to the source

Unambiguous links to end reporting

Cooperation with the detail

Seamless Audit Trail

Data Wherehouse

- Proprietary information collected locally
  - Typical data fields
  - Add the “hooks”
    - Time
    - Geospatial coordinates
    - …
- Access and ties to external information
  - Temperature and temperament
  - All of the context needed to understand the events
- Standards, mapped, from cradle to grave

Some Principles

- Where > ware
  - Having the data is not as important as knowing how to reference, acquire and use the data
- The benefits of “having” the data can be compensated by
  - Trustworthy sources of external data
    - Tracking origin, travel, peer usage of
      - Data
      - Metadata
  - Reduced information friction

Change

- Probabilistic/stochastic
- Data provides comfort to data in context
- “Quantum” reporting parallels
  - Uncertainty principle
  - Observer effect

Questions?