

# Speaking of Metadata

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# A Little About Me ...

## **C Neil Buchwalter** Principal Product Manager

Neil has been involved with databases, data and metadata for more than 25 years. He is currently responsible for defining long- and short-term product strategy, functionality and technical messaging for the CA ERwin® family of modeling products. Much of his workday is spent speaking with customers and non-customers alike – understanding their modeling requirements, collaborating on potential product improvements, discussing workflow topics and providing technical product and modeling guidance.



In addition to co-authoring the **Construction Handbook of the Information Engineering Methodology™** while at James Martin Associates, Neil has provided technical review and editing expertise to several books written about data modeling – most recently for **Data Modeling Made Simple with CA ERwin Data Modeler r8**.

# Overview

The term metadata is commonly used as reference to “**data about data**”. Some find this term confusing or even ambiguous as metadata is a term that is often used to describe fundamentally different types of metadata “things” (e.g., technical, business, descriptive, structural, process, guide, administrative).

During this interactive session, I plan to explore the good, the bad and the “ugly” about metadata.

# Information Objects

- An “Information Object” is anything that is addressed or manipulated as a discrete entity
- Information objects have three “features”
  - **Content** – what an object contains or is about
  - **Context** – the who, what, where, why and how associated with an object's creation
  - **Structure** – a formal set of associations within or among individual objects
- Metadata is used to arrange, describe and/or track information objects

# What is “Metadata”?

Metadata is information that describes (arranges or tracks) information objects. For example:

- Title
- Author
- Year Published
- Publisher
- Copyright
- Number of Pages

are basic pieces of metadata.

# "1812" Overture

New Edition  
By GEORGE CAMPBELL

Largo.  $\text{♩} = 40.$

Musical score for the "1812" Overture, arranged by George Campbell. The score is written for piano and features six systems of music. Each system consists of a treble and bass staff. The tempo is marked "Largo" with a quarter note equal to 40 beats. The key signature is two flats (B-flat and E-flat). The score includes dynamic markings such as *mf*, *f*, *cresc.*, and *ff*. The music is characterized by its rhythmic patterns and chordal textures.

By  
P. TSCHAIKOWSKY



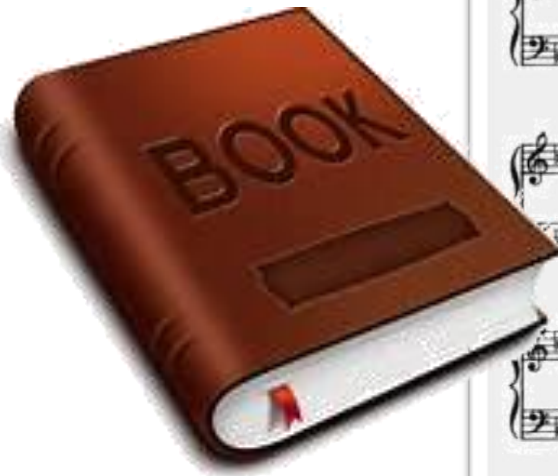
## AN EXCELLENT conceited Tragedie OF Romeo and Iuliet.

As it hath been often (with great applause)  
plaid publicquely, by the right Ho-  
nourable the L. of *Hunsdon*  
his Seruants.



LONDON,  
Printed by Iohn Danter.

1597



## Pop Quiz

Which information object does the metadata really describe?

# Answer:

1. The “Book”
2. The 1812 Overture musical score
3. The Romeo & Juliet script
4. Other information objects



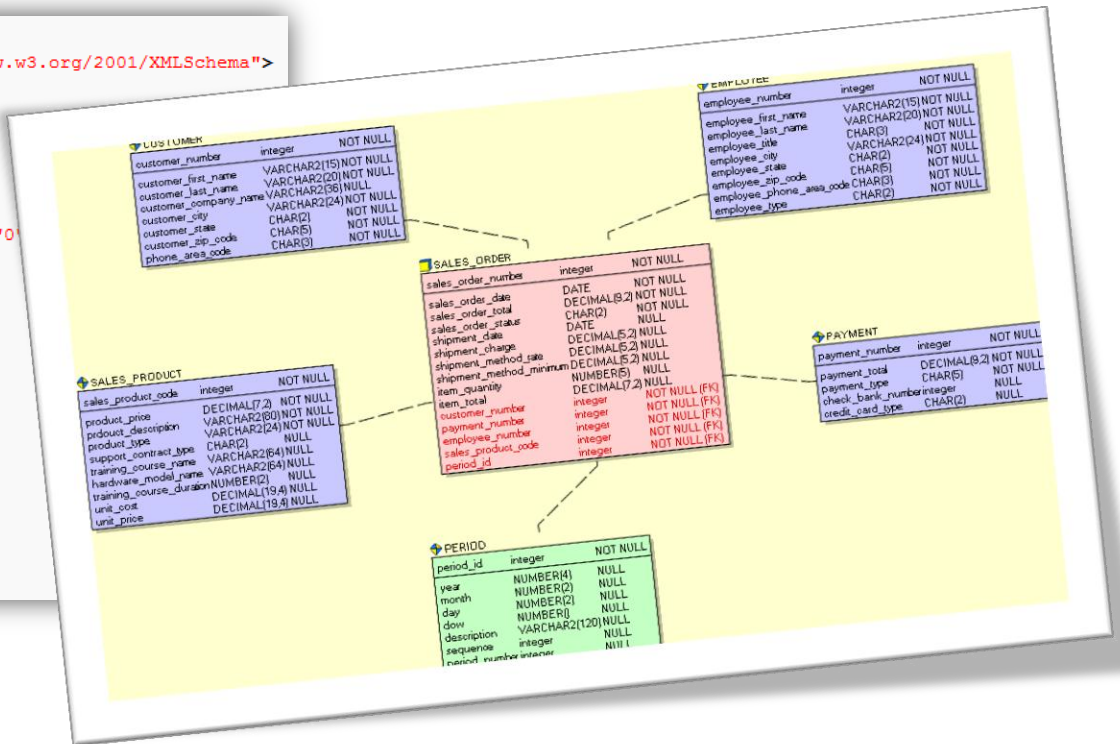
# Metadata Involves Structures and Standards

- Metadata is typically structured according to some well-defined concept or scheme
- Metadata clarity is achieved by using tools to apply standards to information objects
- Structuring metadata and applying standards is highly important to achieve success in technical activities like: data model development and database design
- Rules for structuring metadata are collectively referred to as “**Metadata Syntax**”

# Some Metadata Syntax Examples:

```
CREATE [TEMPORARY] TABLE table (field1 type [(size)] [NOT NULL] [WITH COMPRESSION | WITH COMP] [index1] [, field2 type [(size)] [NOT NULL] [index2] [, ...]] [, CONSTRAINT multifieldindex [, ...]])
```

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema elementFormDefault="qualified" xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="Address">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="Recipient" type="xs:string" />
        <xs:element name="House" type="xs:string" />
        <xs:element name="Street" type="xs:string" />
        <xs:element name="Town" type="xs:string" />
        <xs:element name="County" type="xs:string" minOccurs="0">
          <xs:restriction base="xs:string">
            <xs:enumeration value="IN" />
            <xs:enumeration value="DE" />
            <xs:enumeration value="ES" />
            <xs:enumeration value="UK" />
            <xs:enumeration value="US" />
          </xs:restriction>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```



# Initiate a Metadata Project

Once metadata standards and syntax is agreed upon we can begin to use metadata to perform it's three primary purposes:

- **Browse** our organization's information objects (data)
- **Transfer** and/or integrate those objects
- **Document** the objects

# Metadata Project Success Criteria

- Understanding metadata
- Clear, simple and concise objectives
- Project planning and readiness

# Three Comments Often Heard When Discussing Metadata Projects

- “We got exactly what we were looking for.”
- “This really doesn’t help us much.”
- “We just keep chasing our tail and can’t seem to get started.”



❖ According to industry experts 60 – 65% of all metadata projects worldwide either outright fail or fail to deliver on the defined customer requirements.

# What Steps Help Ensure the Probability of Metadata Project Success?

- Achieve organizational buy-in
- Identify “business critical” processes
- Prioritize and limit
- Discover where the information resides
- Resolve differences and inconsistencies
- Apply structure and standards

# Results of Successful Metadata Projects

- Well documented metadata “solution” that includes:
  - Defined standards
  - Improved data quality
  - Regulatory compliance
  - Limited redundancy across systems
  - Enhanced change management and impact analysis capabilities
  - More accurate estimations and business cases
  - Scalable and extensible models
- Organization business practices are more successful, competitive and agile

# Some Points to Ponder

- Achieving metadata success requires many ingredients
- Metadata solutions are not a one size fits all – what works for one organization may not work for another organization
- “Big Data” solutions will rely more heavily on metadata than do traditional data solutions (databases and data warehouses)



# Thank You!

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Questions?

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