A Solution for Global Collaborative Commerce . . .

Universal Data Element Framework
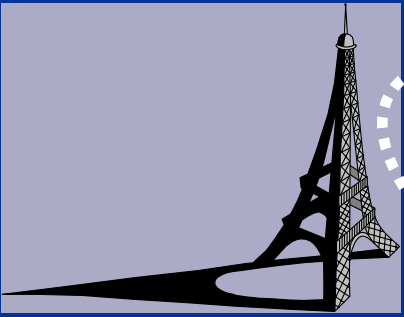
UDEF Power Coupled with XML
for Web Mining

UDEF_Solutions, Inc.
June 29, 1998

Global Collaborative Commerce

Paris

- ☞ **Dewey-decimal-like indexing system for the Web**
- ☞ **Collaboratively sharing information**
- ☞ **Make better, faster, cheaper decisions**
- ☞ **Supply chain selection greatly increased**
- ☞ **Risks and costs of tomorrow's challenges reduced**

CUSTOMERS

SUPPLIERS

New York

London

Consumer

The 'Standard' to Harmonize 'Other Standards'

UDEF's Role in the Supply Chain

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When Supplier Products and Information Systems are UDEF Coded

→ **Identify Products & Suppliers Faster**

→ **Achieve Faster Trading Partner Agreements**

→ **Reduce Interoperability Costs**

→ **Support DOD's CODE Direction**

→ **Assist in International Commerce**

Universal Code Solution

☒ **Universal Code is the "key" to legacy integration and standards harmonization!**

- **Mapping to UDEF is based on semantic equivalence**

- **No system needs to change its data element names**

- **Allows for an unlimited number of aliases**

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Collaborative Commerce Challenges
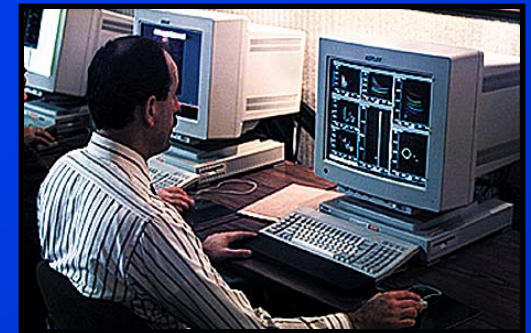

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⭐ **Today's search engines, using HTML, find THOUSANDS of hits . . . and THOUSANDS of misses for common words.**

🕐 **Overlapping and conflicting data standards**

🕐 **Current one-to-one system interfacing approaches are expensive and preclude achieving integration with all members of the supply chain**

➔ **NOT** *cost effective . . .* **$$**

Collaborative Commerce Challenge No. 1

◆ <u>HTML</u> - **Designed for presentation and display**

   ⟶ **NOT *Content***

◆ <u>XML Tagging</u> - **A Part of the formula to expand EDI to small and mid-sized Enterprises**

◆ **The lack of 'standard names' is a recognized shortcoming by the World Wide Web Consortium (W3C)**

XML & UDEF . . .
   Integrating the Global Supply Chain

UDEF Solution No. 1

"... we believe that XML is the standard, extensible, universal data format for the Internet."

- Microsoft

- A "Dewey-Decimal-Like Indexing System" for the Web

- A standard for naming data elements

- Allows rapid comparisons of data element names between multiple systems

- Provides a minimal, intuitive set of key words

A solution to quickly and effectively search the Internet

XML/EDI Example

<PurchaseOrder>

  <Date>April 7, 1998</Date>

  <PurchaseOrderNumber>123abc456789</PurchaseOrderNumber>

  <PartNumberOrdered>444xyz555</PartNumberOrdered>

  <PartQuantityOrdered>25</PartQuantityOrdered>

  <ExpectedDeliveryDate>April 20, 1998</ExpectedDeliveryDate>

  <SendToAddress> etc, etc, etc,

  ....

</PurchaseOrder>

Word Form For Human Interpretation of the Meaning

XML/EDI/UDEF Example

```
<U-d.t.2>

    <U-d.t.2_6>April 7, 1998</U-d.t.2_6>

    <U-d.t.2_8>123abc456789</U-d.t.2_8>

    <U-n.g.9_8>444xyz555</U-n.g.9_8>

    <U-g.9_13.11>25</ U-g.9_13.11 >

    <U-g.9_3.29.6>April 20, 1998</ U-g.9_3.29.6 >

    <U-g.9_5.12.14> etc, etc, etc,

    ............
</U-d.t.2>
```
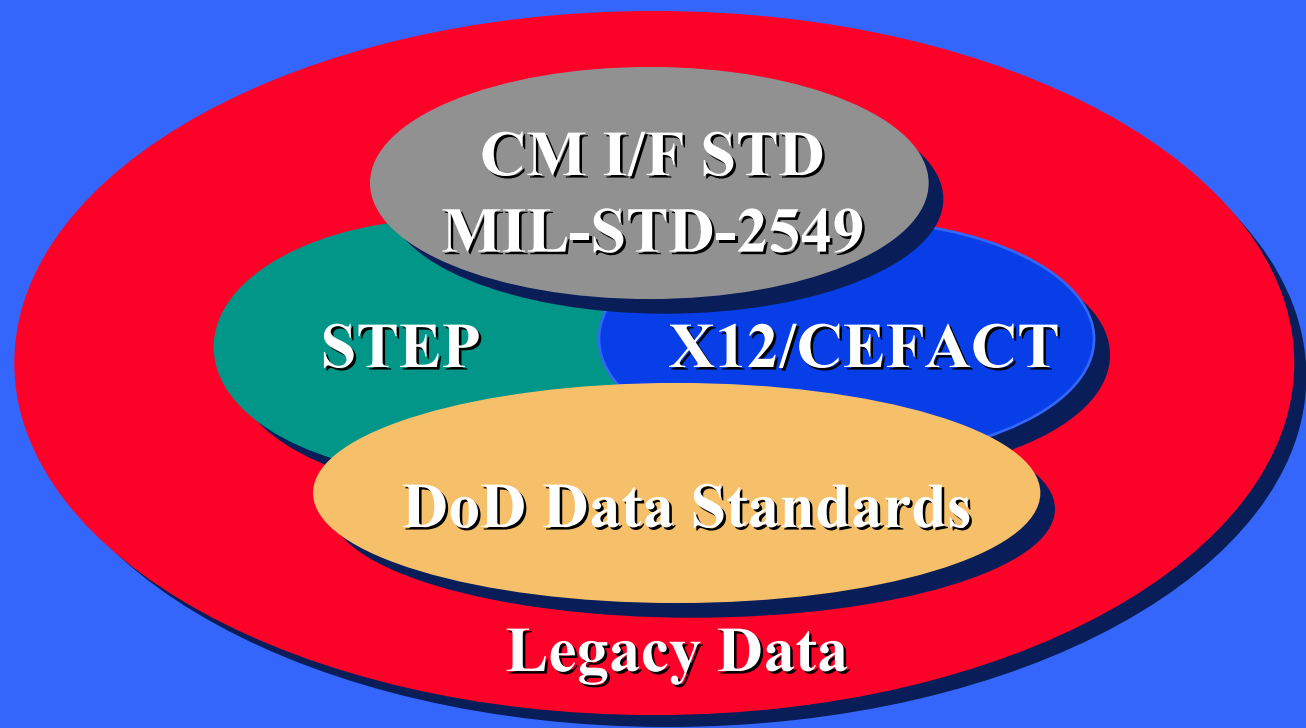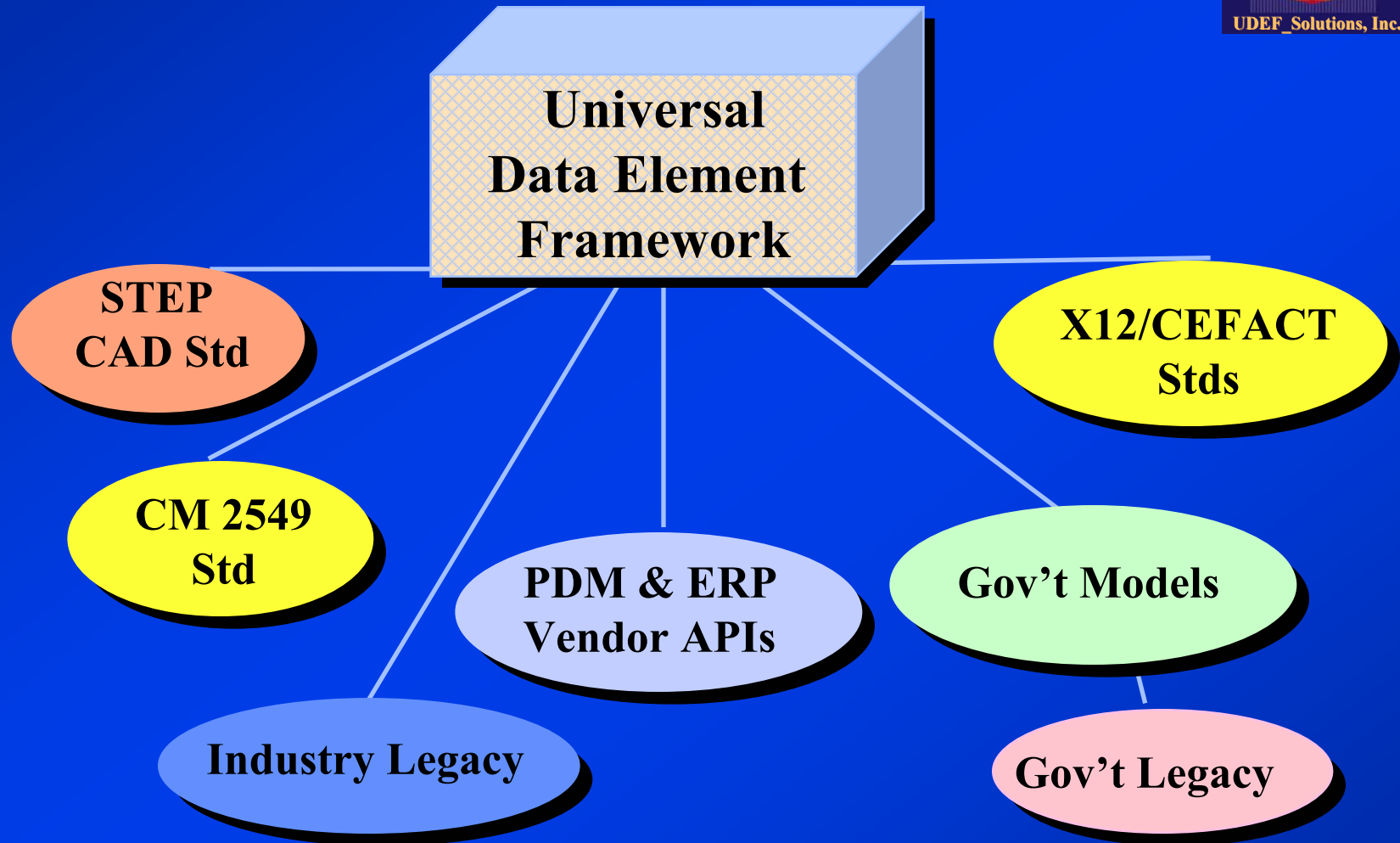
UDEF Form For Unambiguous Interpretation of the Meaning

UDEF Solution No. 2

Universal Data Element Framework

- STEP CAD Std
- X12/CEFACT Stds
- CM 2549 Std
- PDM & ERP Vendor APIs
- Gov't Models
- Industry Legacy
- Gov't Legacy

Data standards mapped into framework – along with vendor APIs and legacy data

Matrix Example

Data elements shown below in the same row are semantically equivalent

CEFACT Name	STEP AP 203 Name	XML Name	UDEF Name	UDEF Code
Goods Identifying Number	Part_Number	<PartNumber>	Part Product Identifier	g.9_8
	Part_Nomenclature	<PartName>	Part Product Name	g.9_9
Seller Name	Supplier_Name	<SupplierName>	Supplier Enterprise Name	y.3_9
Contract Number	Contract_Number	<ContractNumber>	Contract Document Identifier	e.2_8
	Component_Quantity	< ComponentQuantity >	Component Product Quantity	f.g.9_11
Message Type Code		<DocumentType>	Document Type Code	2_33.4

Examples of overlapping and conflicting data elements in the CEFACT and STEP International Standards are shown coded to the UDEF.
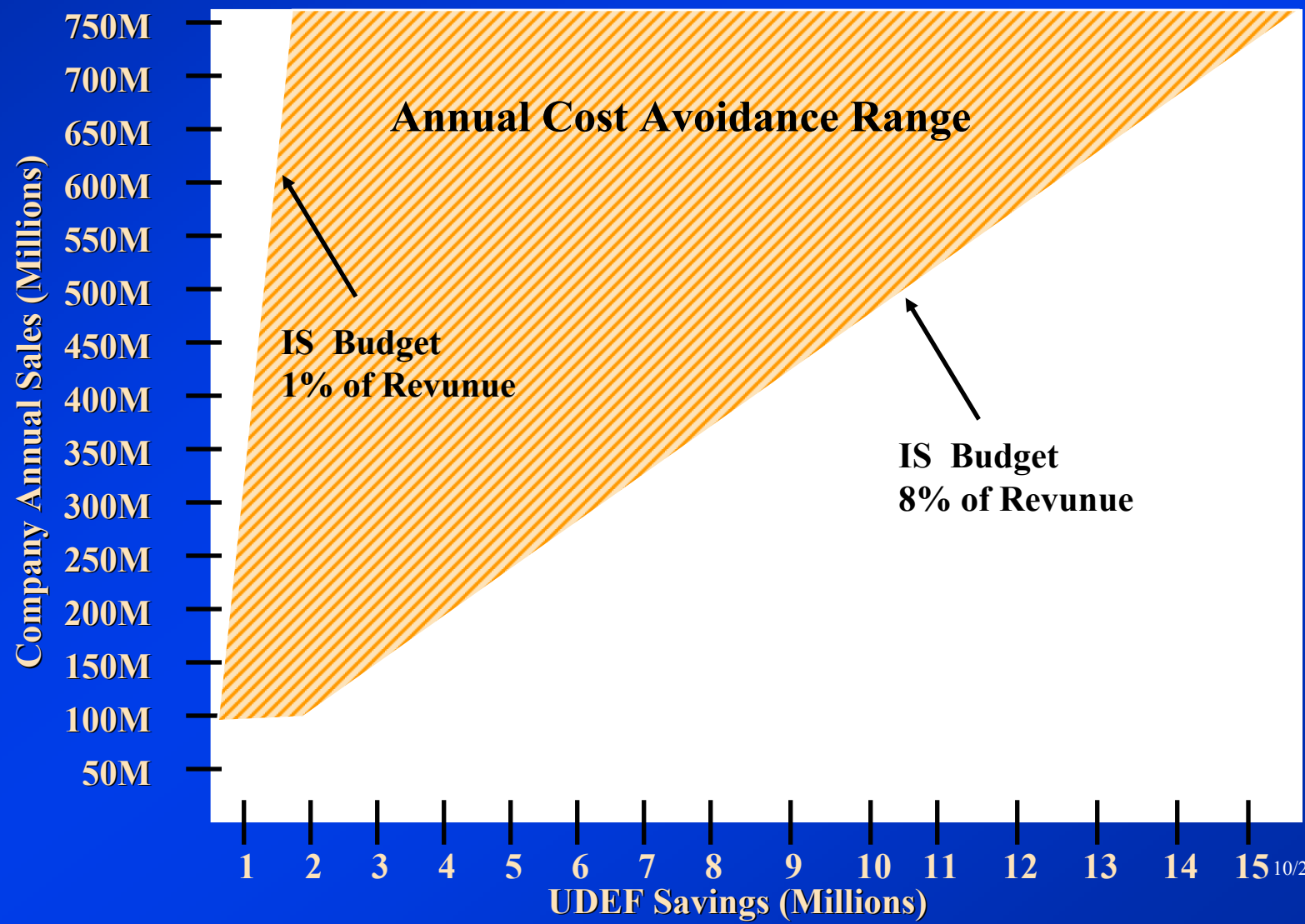
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Substantial Information Services Costs Per Total Sales

&*Sector*	&*Information Technology Budget*
◆ **Banking**	◆ **7.8 %**
◆ **Financial Other Than Banking**	◆ **6.2 %**
◆ **Insurance**	◆ **2.4 %**
◆ **Manufacturing**	◆ **2.0 %**
◆ **Energy (Oil and Gas)**	◆ **1.6 %**
◆ **Retail Sector**	◆ **1.1 %**
◆ **Transportation**	◆ **.7 %**
◆ **Distribution**	◆ **. 6%**

UDEF Solution No. 3

Company Sales / Potential Cost Avoidance

Annual Cost Avoidance Range

IS Budget
1% of Revunue

IS Budget
8% of Revunue

Company Annual Sales (Millions):
750M, 700M, 650M, 600M, 550M, 500M, 450M, 400M, 350M, 300M, 250M, 200M, 150M, 100M, 50M

UDEF Savings (Millions): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

UDEF Methodology Overview

Uses ISO/IEC 11179 Naming Convention
"Specification and Standardization of Data Elements"

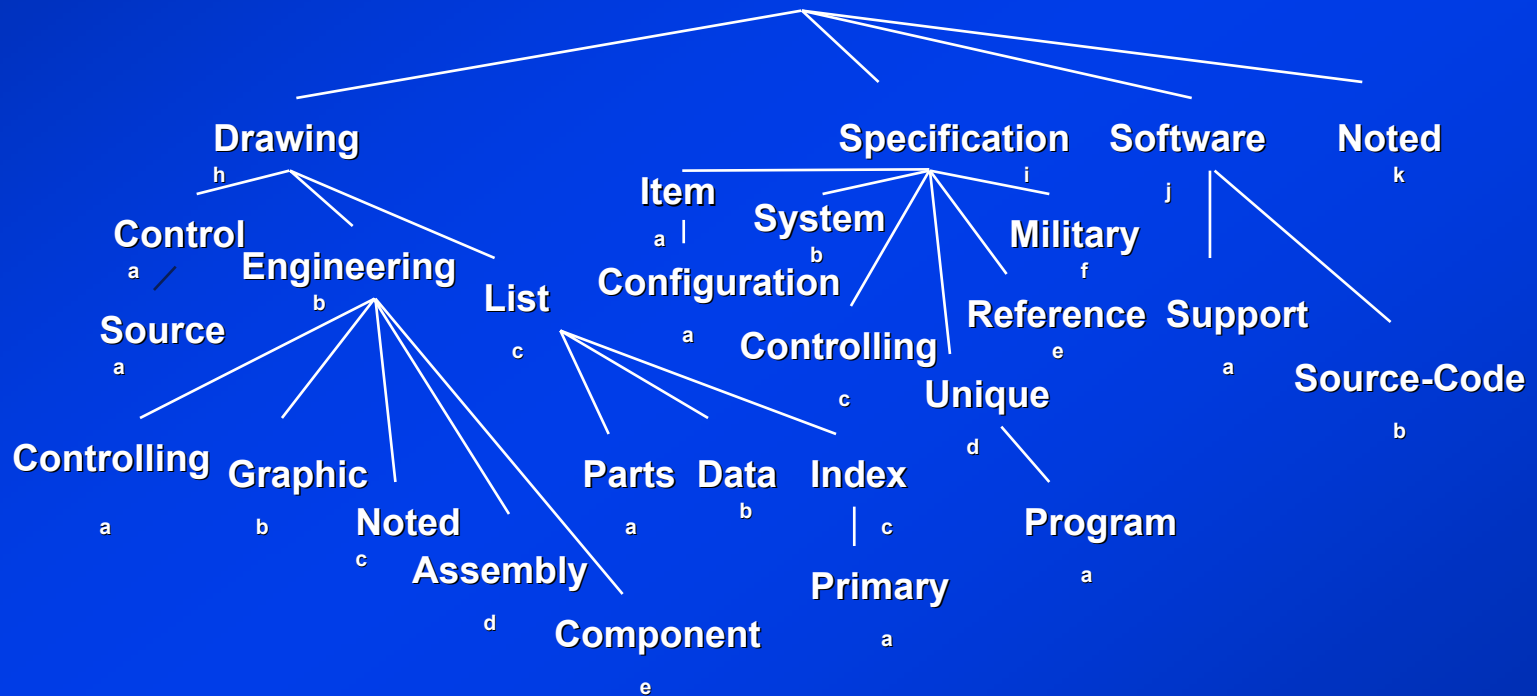| Objects	**+**	Properties

- ◆ **Objects and Properties are sub-typed and essential relationships captured in the name to establish CONTEXT**
  - ◆ **Captures the essential words of data model within the data element's name**
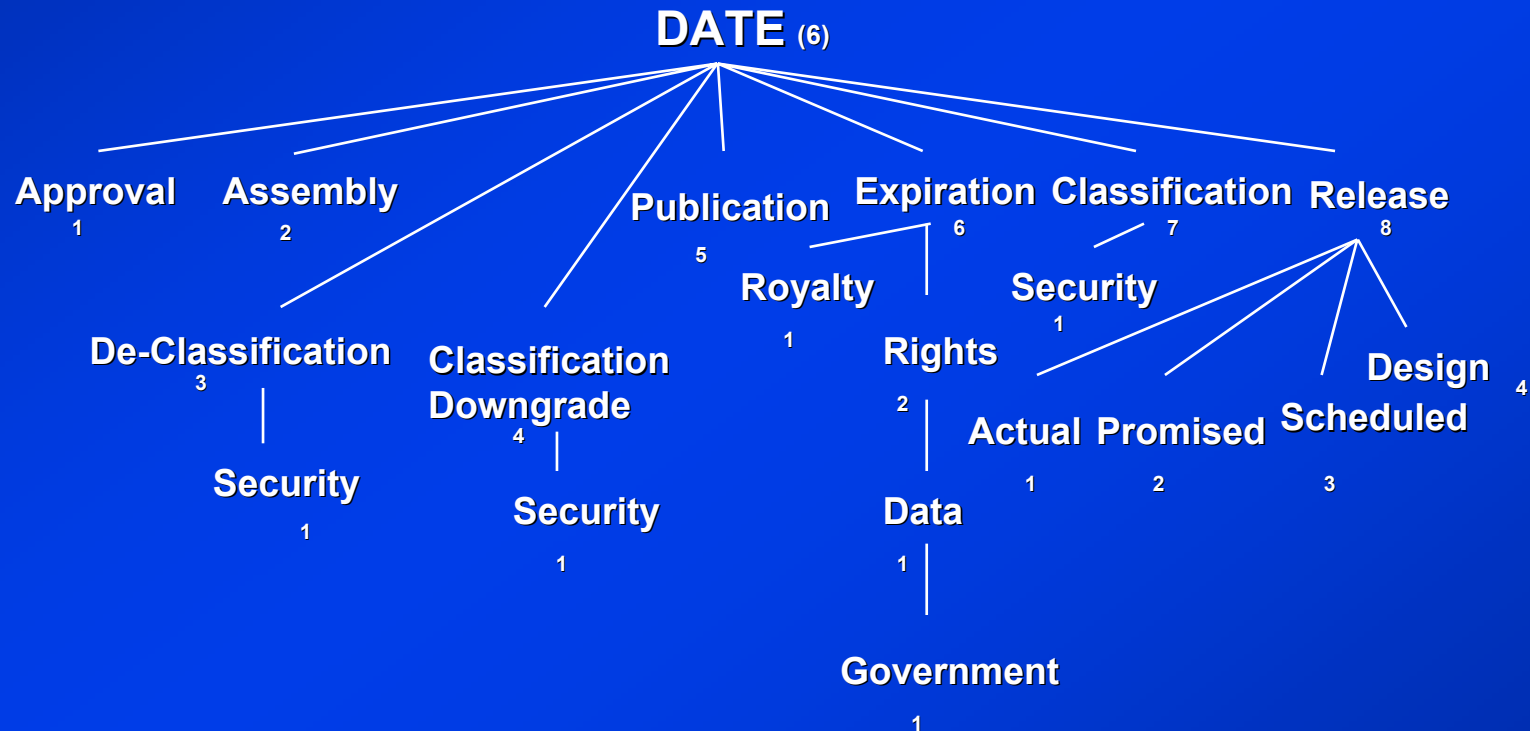- ◆ **Word sequencing follows rules of English**
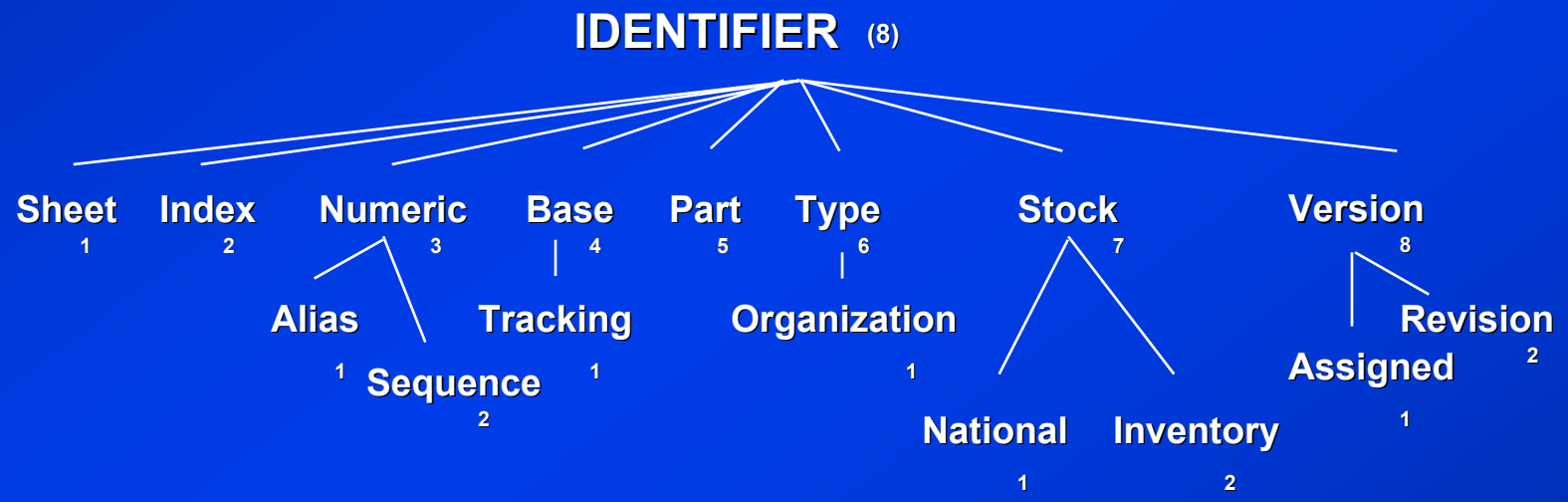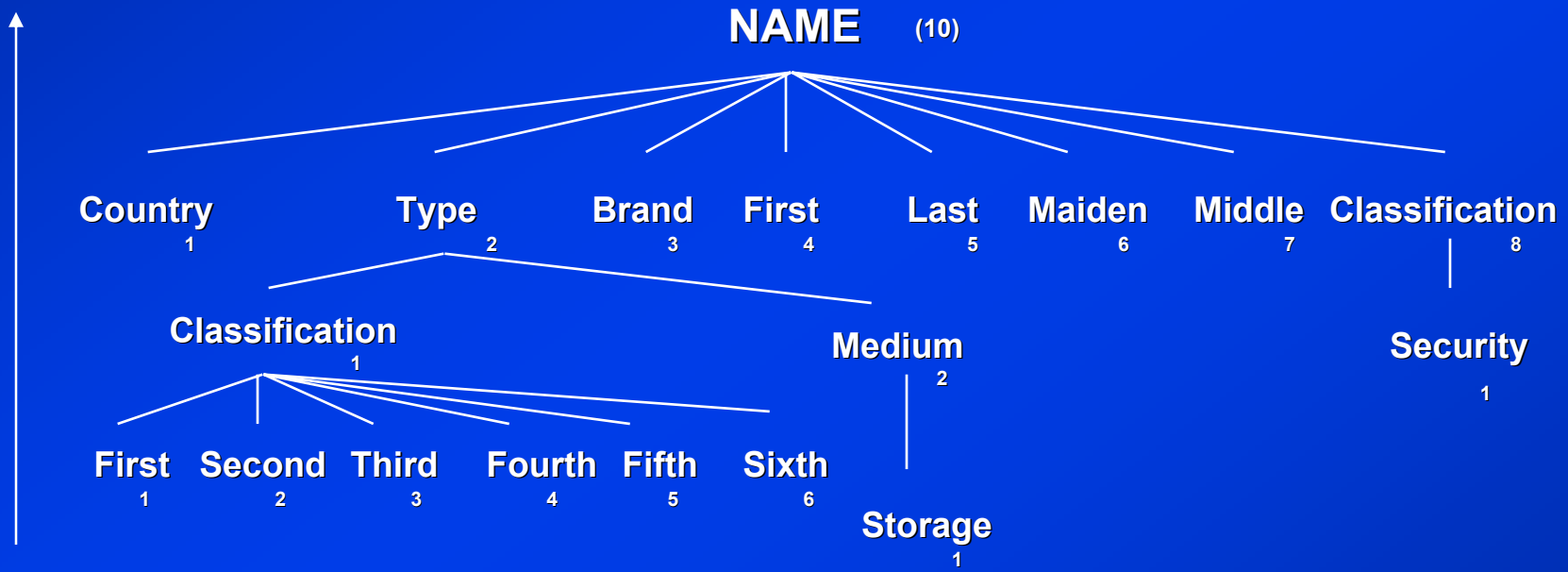
Example - DOCUMENT Object

DOCUMENT (2)

Drawing h

Specification i

Software j

Noted k

Control a

Engineering b

Item a l

System b

Military f

List c

Configuration a

Reference e

Support a

Source a

Controlling c

Unique d

Source-Code b

Controlling a

Graphic b

Parts a

Data b

Index c

Program a

Noted c

Assembly d

Primary a

Component e

Example - DATE Property

DATE (6)

Approval 1

Assembly 2

De-Classification 3

Security 1

Classification Downgrade 4

Security 1

Publication 5

Royalty 1

Rights 2

Data 1

Government 1

Expiration 6

Classification 7

Security 1

Actual 1

Promised 2

Release 8

Scheduled 3

Design 4

Example -
NAME Tree (Page 1)

NAME (10)

Country 1 Type 2 Brand 3 First 4 Last 5 Maiden 6 Middle 7 Classification 8

Classification 1   Medium 2   Security 1

First 1 Second 2 Third 3 Fourth 4 Fifth 5 Sixth 6

Storage 1

More Examples

ANSI X12 & CEFACT (EDIFACT)
Data Elements

Universal Code

Data Element	Universal Code
country code	e.7_4
invoice number- assigned by issuer	bd.2_1.35.8
purchase order type code	d.t.2_33.4
postal code	7_1.10.4
location qualifier	7_20.33.4
location identifier	7_8.4
contract effective date	e.2_13.6
expiry date of import license	a.be.2_6.6
item number - product	9_8
item number - service	f.9_8
price	9_2.1

For more information:

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