



IAE Standard Transactions Version 2.0

September 29, 2005

Integrated
Acquisition
Environment



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1. Executive Summary

The Integrated Acquisition Environment (IAE) is one of 24 e-Government initiatives in the President's Management Agenda. The IAE value proposition recognizes acquisition has common functions, which can be consolidated through a multi-agency, shared services environment. Figure 1 shows the conceptual architecture for IAE. The vision is to create a secure business environment that facilitates and supports cost-effective acquisition of goods and services in support of mission performance.

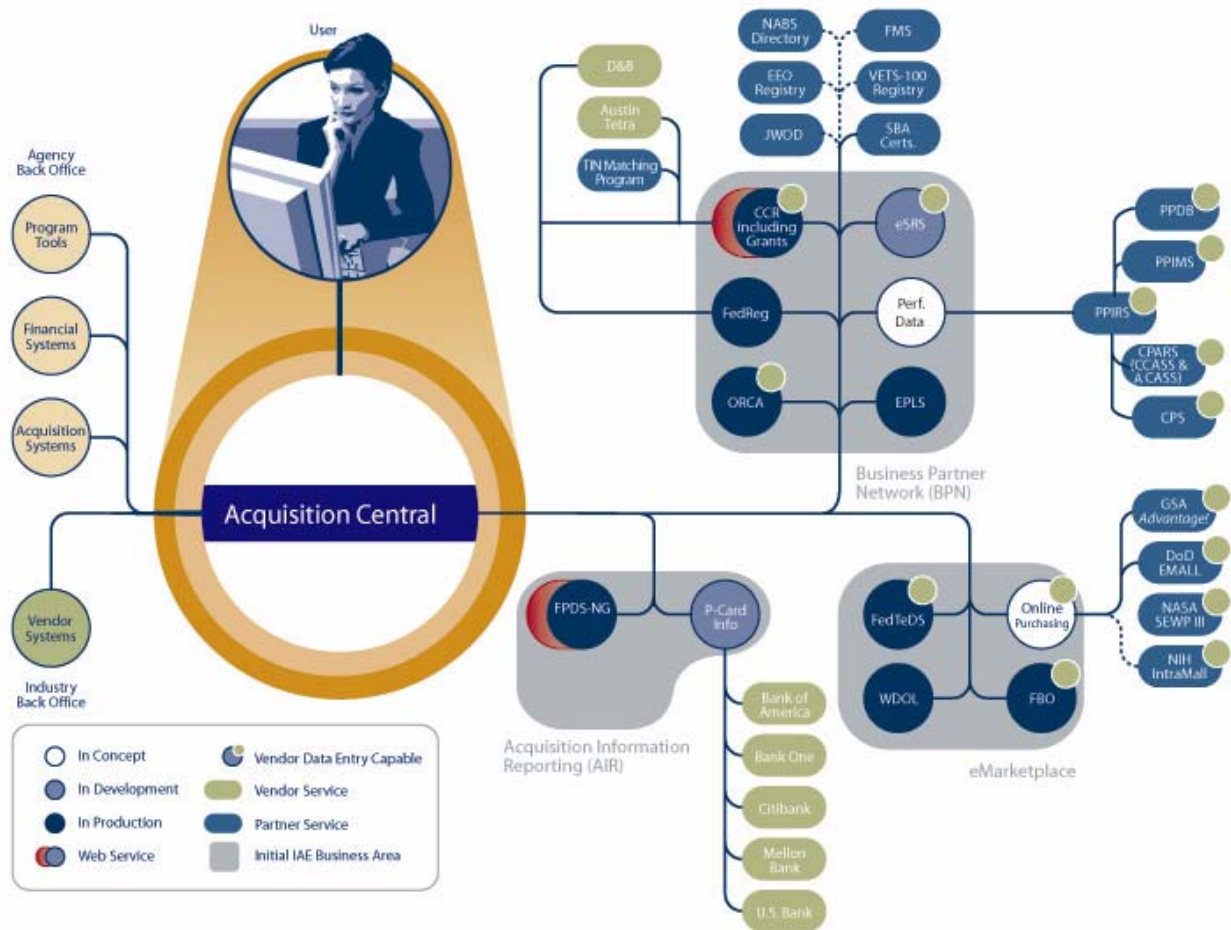


Figure 1 - The IAE Conceptual Architecture

The target audience for this document is the Federal Acquisition Community that includes Federal Agency Acquisition, Information Management, and Finance organizations as well as private companies providing acquisition and financial commercial-off-the-shelf or custom software to federal agencies.

The objectives of this document are to:

1. Introduce and describe IAE Standard Transactions and its role in enabling the interoperability of systems across the IAE environment;
2. Explain the role of Standards in establishing interoperability in a shared systems environment;
3. Describe the process used to develop and maintain IAE Standard Transactions;
4. Refine definitions, data element names and constraints of the Standard Vocabulary based on analysis of the existing interfaces for four of the shared IAE systems that were included in the Standard Transactions v1.1 – Central Contractor Registration (CCR), Federal Procurement Data System – Next Generation (FPDS-NG), and Federal Registration (FedReg). Although as per OMB’s decision, Intragovernmental Transaction Exchange (IGTE) is no longer being used by the Federal Agencies, we decided to include the data elements. In addition, include definitions, data element names and constraints of the Standard Vocabulary based on analysis of the existing interfaces for the remaining shared IAE systems – Online Representations and Certifications Application (ORCA), Electronic Subcontracting Reporting System (eSRS), Excluded Parties Listing System (EPLS), Federal Technical Data System (FedTeDS), Wage Determination On-Line (WDOL), Purchase Card Information (P-CARD) planned to be included in Federal Procurement Data System – Next Generation (FPDS-NG) and Federal Business Opportunities (FBO).

1.1 Stakeholders & Benefits

The success of IAE Standard Transactions and their ability to support improved acquisition processes is dependant on ongoing involvement and support from the acquisition community. **Table 1** outlines the major stakeholders and benefits of IAE Standard Transactions for the acquisition community.

Table 1: Major stakeholders and benefits of the IAE Standard Transaction

Stakeholder	Benefits
Federal Acquisition Community	<p>Increased interoperability among systems in IAE that support end-to-end processes</p> <p>Greater flexibility to incorporate new/changed requirements or capabilities</p>
Federal Finance Community	<p>One common approach and vocabulary for interacting with IAE shared systems</p> <p>Less time and cost to implement new/changed financial integration requirements</p>
Federal Information Technology Community	<p>Reduction in cost/time to develop and maintain systems</p> <p>Robust, secure, managed integration environment</p> <p>Increase staff experience and expertise with modern data standardization and integration technologies</p> <p>Alignment with Federal Enterprise Architecture (FEA) Data Reference Model (DRM)</p>
Vendors	<p>One common approach and vocabulary for interacting with IAE shared systems</p> <p>Less time and cost to respond to new/changed Federal Government requirements</p> <p>Less time and cost to introduce new/changed capabilities</p> <p>Increased commonality between how they interact with the Federal Government and their other customers (State & Local, Industry, International)</p>
COTS Providers	<p>Only need to support one common approach and vocabulary in their products for integration with IAE shared systems</p> <p>Increased capability for sophisticated integration with IAE shared systems and end-to-end processes</p> <p>Increased commonality between solutions developed for Federal Government and other customers (State & Local, Industry, International)</p>

2. The Integrated Acquisition Environment

The President's Management Agenda on E-Government established the IAE initiative in 2001 to develop a secure business environment that facilitates and supports cost-effective acquisition of goods and services in support of mission performance throughout the government. The Office of Acquisition Services, with the General Services Administration as the Managing Partner, leads the IAE development. Over 300 representatives from 65 agencies have participated in IAE working groups to help define and implement the IAE vision.

Federal agencies have been actively using electronic commerce and working toward increasing efficiencies within the government's acquisition process in response to legislation and policy changes. However, lack of coordination among agencies has led to duplication of effort, stove-piped information systems, lack of data/messaging standards, lack of scale, and insufficient leverage.

The premise of a government-wide Integrated Acquisition Environment is that it be more successful and cost-effective than stand-alone agency processes.

The IAE will leverage the Internet and the technology infrastructure currently existing in government agencies and will also leverage existing and emerging government capabilities. IAE will be built on the framework of a shared services model where no single organization has "ownership", rather the services are a constellation of capabilities built on standards and accessible over the Internet. The IAE will serve as the focal point for various services and will provide the capabilities that can be leveraged by the acquisition community stakeholders to conduct business across the government.

The major elements of IAE include four broad Business Areas:

- eMarketplace
- Business Partner Network (BPN)
- Acquisition Information Reporting (AIR)
- Standard Transactions

Each of these is discussed below.

2.1 eMarketplace

eMarketplace will provide market research capabilities for buyers and sellers. Initially, it established a government database of existing interagency contracts, to facilitate discovery and enable smarter business decisions. This Interagency Contract Directory (ICD) will be incorporated in the FPDS-NG and

will enable future analysis of business duplication to improve spend leverage. The intra-governmental sources for supplies and services will also be linked providing user's access to all government sources (contracts and other agencies awardees) in one place.

The longer-term vision is to evolve towards integration of e-catalogs in an effort to eliminate duplicate requirements on our vendors and facilitate integration with back office finance and acquisition systems.

2.2 Business Partner Network (BPN)

The Business Partner Network is the business area for the trading partners for the government – a one-stop-shop for registering and accessing vendor information. The BPN includes:

- Central Contractor Registration (CCR) system that provides a single data entry system for vendor information collection and validation. CCR maintains the core vendor identification key (using DUNS) and Electronic Funds Transfer information that is used by all systems across the government. As such, CCR data is shared both with agency contract writing systems, and with all government systems that use vendor information (e.g. Agency financial systems);
- Integration with other shared vendor-information systems in the Government to provide a single source for all information on a vendor to improve competitive sourcing and enable better business decisions. Examples include: Online Representations and Certifications Application (ORCA) for vendors, the database for the required standard representations and certifications required in every solicitation; Federal Registration (FedReg); and the Excluded Parties Listing System (EPLS); and
- Validation of data with third parties wherever possible such as Taxpayer Identification Number with IRS; DUNS number validation with Dun and Bradstreet; 8(a), HUBZone and Small Disadvantaged Business status validation with SBA.

2.3 Acquisition Information Reporting (AIR)

The IAE Acquisition Information Reporting (AIR) business area is the focal point for all acquisition reporting across IAE shared and partner systems. A government-wide procurement reporting and business intelligence capability is critical to understanding purchasing activity across the government. This allows the government to develop sourcing strategies including opportunities to pool spend, negotiate government-wide contracts, and identify purchasing trends:

- The Federal Procurement Data System – Next Generation (FPDS-NG) provides the initial foundation for AIR. FPDS-NG is the central point for consolidated collection of statistical and management information related to government acquisitions. It provides timely management data and tailored reporting capability of real-time information in an automated environment. It also eliminates the need for dozens of feeder systems; and
- AIR will expand on FPDS-NG by adding reporting capabilities for information in other IAE systems, as feasible. Examples include Purchase card information from the banks and interagency contracts directory information.

2.4 Standard Transactions

IAE is critically dependant on interoperability of the shared, agency, and vendor systems in the acquisition environment. Standard Transactions establishes standard data elements, business definitions, ownership, behaviors, and roles and responsibilities for Government acquisition data. The “common language” provided by Standardized Transactions is a key enabler for achieving this needed interoperability. Standard Transactions address both what information has to be exchanged among systems (standard data exchanges), and what the information means (standard data element names and semantics) so that all systems can understand each other. Without Standard Transactions, every system would need to know how to speak every other system’s unique language – and would incur the related overwhelming complexity, time, and cost of incorporating new/changed systems or capabilities.

3. Standard Transactions Details

3.1 What are Standard Transactions?

The Standard Transactions define the “common language” used to support interoperability:

- Between parts of IAE shared systems;
- Between IAE shared systems and agency back office applications (financial, acquisition, program); and
- Between IAE shared systems and vendor systems.

Standard Transactions are composed of Standardized Vocabulary that defines the MEANING (semantics) and FORM (XML) of the data used in the Information Exchanges – both required if systems are to understand each other. The Standardized Vocabulary includes both low-level data elements (e.g., name, phone number, etc) and higher level constructs (e.g., a contact person with their physical and electronic addresses) needed for the Information Exchanges.

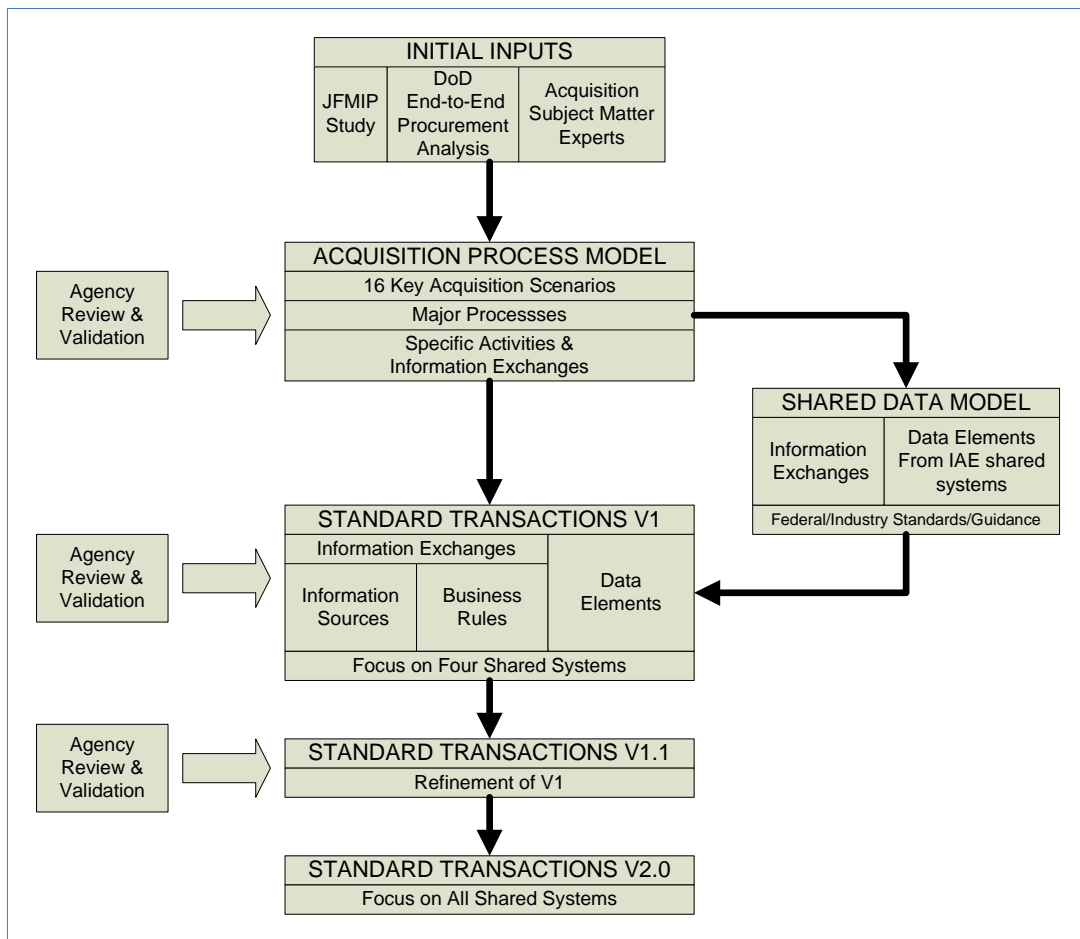
3.2 The IAE Standard Transactions Process

Figure 2 reflects the process for developing IAE Standard Transactions. The development of the Standard Vocabulary may be new to many readers – therefore it is discussed below.

A cross agency team of procurement, finance, policy, and information specialists was established to develop the IAE Standard Transactions. The cross agency team quickly discovered that despite the governance of the Federal Acquisition Regulations, there is often significant variability in the acquisition process between and sometimes even within agencies as a result of agency implementations.

Using existing work already accomplished by the Department of Defense and the Joint Financial Management Improvement Program (JFMIP), the team identified 16 key acquisition scenarios applicable to all federal agencies. Each scenario documented the specific activities, information exchanges, and information sources involved.

Figure 2 – Standard Transactions Process



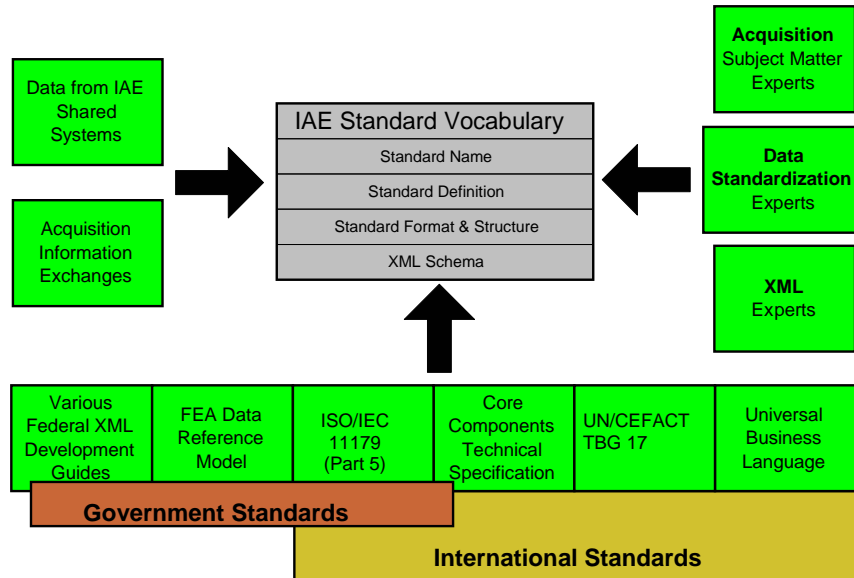
These scenarios were distributed to agencies for review in a November 26, 2002 Memorandum for the Procurement Executive Council. Agency responses were reviewed, analyzed and used to develop the “Acquisition Backbone Scenario” a representation of the most complex acquisition scenario that includes the majority of information exchanges discovered in all 16 acquisition scenarios.

A listing of the 16 scenarios is included in [Appendix C](#). These scenarios are available at <http://acquisition.gov/>.

3.3 Developing IAE Standard Vocabulary

The IAE Standard Vocabulary is the aggregation of all the data elements supporting the Information Exchanges needed for interoperability of systems supporting IAE shared processes. [Figure 3](#) shows the major inputs that were used in defining the Standard Vocabulary.

Figure 3 - Inputs into building the Standardized Vocabulary



The process used for defining the IAE Standard Vocabulary is based on the general approach defined in the FEA DRM (see [Appendix A](#) for details of the process.) As such, it involves a sophisticated data modeling effort using Unified Modeling Language (UML), ISO/IEC 11179 data element naming, Universal Business Language (UBL), and UN/CEFACT Core Components Technical Specification principals. This is followed by XML Schema development to define the precise structure of Information Exchange payloads. By leveraging this approach, IAE:

- Builds on the experience and expertise of the data standardization community; and
- Maximizes interoperability with other Agency, Federal lines-of-business, and external (industry, State & Local, international) vocabularies.
- The companion spreadsheet entitled “Standard Transactions v2.0 Vocabulary” details the standard data elements identified for IAE. These elements are based on the information needed for existing interoperability with the IAE shared systems: Central Contract Registration (CCR), Federal Procurement Data System - Next Generation (FPDS-NG), Government Purchase Card (P-CARD Info), Federal Registration (FedReg), Online Representations and Certifications Application (ORCA), Federal Technical Data System (FedTeDS), Federal Business Opportunities (FBO), Excluded

Parties Listing System (EPLS), Electronic Subcontracting Reporting System (eSRS), Interagency Contracts Directory (ICD) and Wage Determination On-Line (WDOL). Although Intra-Governmental Transaction Exchange (IGTE) is no longer being used by the Federal Agencies, we decided to include the data elements.

3.4 Standard Transactions Vocabulary, Version 1.0 and Version 1.1

Version 1.0 of the Standard Transactions vocabulary was defined in a Microsoft Word table included in the document entitled IAE Standard eTransactions Review Instructions and Forms, Version 1.0 (Sept. 30, 2003). The data element modeling process was described in the related document called IAE Standard eTransactions Version 1.0 Documentation (Sept. 30, 2003). The Federal Enterprise Architecture (FEA) was the main driver behind our approach which consisted of:

- Data modeling efforts using Unified Modeling Language (UML)
- ISO/IEC 11179 data element naming
- Universal Business Language (UBL) version 0.7, an emerging standard from OASIS
- UN/CEFACT Core Components Technical Specification (CCTS) version 1.9 principles.

Standard Transactions 1.0 contained 257 elements drawn from five IAE shared systems: CCR, FPDS-NG, FedReg, IGTE, and PPIRS. For each element, we defined several columns (characteristics) based on responses to data calls:

- Number (the identifier described below)
- XML Element Name (based on UBL conventions)
- Basic Information Entity Name (based on ISO/IEC 11179 and CCTS)
- An agreed upon definition
- Format
- Max Length
- Data constraints, when known

Elements were grouped according to several very broad categories (below). An identifier of the form “CCCddd” was assigned to each element, where “CCC” was the three-character abbreviation for the category and “ddd” was the three-digit number of the element within that category. The broad categories were as follows:

- ADR = Address
- CON = Contact
- CTR = Contract
- FIN = Financial
- ORG = Organization
- PAY = Payment

- SOC = Socioeconomic
- SYS = System

For example, an illustrative row of the Standard Transactions 1.0 vocabulary appears below:

No.	XML Element Name	Basic Information Entity Name	Definition	Format	Max Length	Constraints
ADR011	Country	Product Origin_ Address. Country. Text	The name that identifies the territorial division (a chief unit of local administration) of a country, as part of an address of the product origin.	Alphanumeric	50	minLength=0, maxLength=50

For Standard Transactions Version 1.1, Version 1.0 vocabulary was refined and published as a table in the document entitled *IAE Standard Transactions 1.1 Vocabulary, Version 1.1* (June 9, 2005). The data element modeling process was described in the related document called *IAE Standard Transactions Version 1.1* (June 9, 2005).

3.5 Data Element Renaming Process for Standard Transactions 2.0

In Standards Transactions 2.0, our focus was to further refine the element names that were published in version 1.1 and if necessary, introduce additional elements for the remaining IAE shared systems. Wherever possible, we have chosen element names that match elements from UBL 1.0 (from OASIS). In cases where elements related to object classes not defined in UBL, we have drawn from the core components in TBG-17 version 2.01 (from UN/CEFACT) whenever possible. The elements and core components that comprise these two international standards are located at:

- http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=ubl
- http://www.disa.org/cefact-groups/tbg/wg/tbg17_main.cfm

[At the time of this writing, the valid link to TBG-17, CC Release 1 version 2.01 spreadsheet was: http://www.disa.org/cefact-groups/tbg/docs/tbg17/TBG%20CC%20Library%20Version%201_081004.xls .]

Elements were grouped according to several very broad categories (below). An identifier of the form “CCCddd-x” was assigned to each element, where “CCC” was the three-character abbreviation for the category and “ddd” was the three-digit number of the element within that category and “x” represents a unique Parent XML Element Name (Business Context) for a particular data element. The broad categories were as follows:

- ADR = Address
- CON = Contact

- CTR = Contract
- FIN = Financial
- ORG = Organization
- PAY = Payment
- PRD = Product
- PUR = Purchase Request
- SOL = Solicitation
- SYS = System
- WAG = Wage Determination

In Standard Transactions 2.0, data elements were stored in a Microsoft Excel spreadsheet. We kept the “Parent XML Element Name” column to provide hierarchical context. We also merged the “Max Length” and “Constraints” columns into one column called “Constraints”. We introduced a “No. (Ver 2.0)” column and preserved “No.” column from the Standard Transactions 1.1 in “No. (Ver 1.1)” column to facilitate mapping from the old numbers to new. For example, the sample row above became:

No. (Ver 2.0)	No. (Ver 1.1)	XML Element Name	Parent XML Element Name	Basic Information Entity Name	Definition	Format	Constraints
ADR013-B	ADR011	Country Name	ProductOriginAddress	Product Origin Address. Country. Name	The name that identifies the territorial division (a chief unit of local administration) of a country, as part of an address of the product origin.	Alphanumeric	minLength=0, maxLength=50

There are several points to note from this example:

1. The order of rows is now based on the “No. (Ver 2.0)” column; we preserved the “No. (Ver 1.1)” to represent version 1.1 numbering scheme and make comparison easier. If a new data element was added, only “No. (Ver 2.0)” is shown and “No. (Ver 1.1)” is blank.
2. The XML Element Name has changed, as has the Basic Information Entity Name. This is true for most of the elements in the Standard Transactions vocabulary.
3. The Parent XML Element Name gives us context, so the XPath to this particular element would be //ProductOriginAddress/CountryName, denoting that the parent element may itself have a parent, grandparent, etc. in the XML document hierarchy. (For a quick introduction to XPath, see http://www.w3schools.com/xpath/xpath_intro.asp.)

4. The Constraints column reflects the maxLength, no other constraint information is needed in this case.

As we examined each of the elements previously defined in Standard Transactions 1.1, we reviewed several different information sources to determine the best name and constraints:

- We reconsidered the 1.1 Basic Information Entity (BIE) Name based on our current understanding of CCTS 2.01 and ISO/IEC 11179, as well as other IAE data modeling performed since 2003.
- In particular, we reconsidered all components of the BIE: the Object Class, the Property Term, the Representation Term, and the typical qualifiers that preceded each of the three parts.
- If UBL 1.0 defined a similar Object Class and Property Term, we borrowed that (assuming it was relevant to the definition of our element).
- In other cases, TBG-17 version 2.01 had a more appropriate match, so we borrowed that. However, since TBG-17 is Core Components (rather than BIEs), we had to add our own qualifiers.
- In many cases, we needed to revisit the original data dictionary entry for the data element as given in the response to our early data call since the entry might reveal details that would cause us to alter our element name, definition, format and/or constraints. For example, if an element was previously indicated as Boolean (an “Indicator” in CCTS), but the data dictionary indicated it was a single character value (e.g., ‘Y’, ‘N’, or ‘x’), then we changed the format accordingly to Alphanumeric of length = 1.
- For common Property Terms, we have selected specific maxLength constraints. For example:
 - Telephone, FAX = 25 characters
 - Name = 75 characters (for elements for which a name is not subdivided into 2 or 3 fields)
 - Given = 25 characters
 - Middle = 25 characters
 - Family = 25 characters
 - CountryName = 50 characters

3.6 Alphanumeric, String or Text?

The definition of the term “Alphanumeric” differs depending on the information technology application. Rather than simply the set of all letters and digits, we have chosen the broader definition as per WordNet: “character set that includes letters and digits and punctuation marks” and also spaces. Many developers may think of this as “String” (Java) or “Text” (CCTS).

3.7 Boolean Values

IAE systems presently implement many different value pairs to represent Boolean values: {0, 1}, {'N', 'Y'}, {"no", "yes"}, {"true", "false"}, etc. Since our goal is to create XML Schema to support standard transactions, we need to make it part of migration path for systems to use the value set that is built-in to the XML Schema primitive type, `xsd:boolean`. The legal literal values are: {0, 1, false, true}. The canonical values are simply {false, true}. Therefore, please do not use yes/no variants. See <http://www.w3.org/TR/xmlschema-2/#boolean>

3.8 Length vs. MaxLength

In the accompanying Standard Transactions 2.0 Vocabulary spreadsheet, we have used term “length” to indicate that the data value has a fixed length, whereas “maxLength” denotes the upper limit of an element of variable length. If “MinLength” is given, it generally indicates that it is a mandatory element.

3.9 Dates and Time

A wide variety of date formats are used in IAE shared systems (MMYYYY, MMDDYY, MMDDYYYY, YYYYMMDD, etc.). Does the year appear first or last? Is the year 2 or 4 digits? Are there slashes to separate month, date, and year? Is the date of the month even included? The answers vary widely across systems. In the accompanying Standard Transactions 2.0 Vocabulary spreadsheet, we have tried to capture the *existing* date representations in the Constraints column for each element of Format (datatype) Date.

However, system stewards should initiate analysis to determine the impact of shifting to a more uniform date format. UBL 1.0 defines both a `DateType` and a `DateTimeType`, based on `xsd:date` and `xsd:dateTime`, respectively. If your system does not care about time of day, use `DateType`. XML instance examples of the two types follow:

```
<shipDate>1999-05-21</shipDate>
```

```
<cbc:ActualDeliveryDateTime>2003-02-  
14T13:30:00</cbc:ActualDeliveryDateTime>
```

In the first example, note that the W3C XML Schema `xsd:date` format is **YYYY-MM-DD**; the hyphens are required. In the second example, the line break after “02-” is strictly for printed readability; the XML must not contain a newline here. Also notice that the `xsd:dateTime` format uses the letter ‘T’ as the time separator; no other character is permitted, so the format is **YYYY-MM-DDTHH:MM:SS**. (Actually, there are additional details such as time zone and how to omit optional parts in the W3C specification.)

This date/time format is actually an international standard that predates UBL and XML Schema, ISO 8601:2000. The normative ISO 8601:2000 reference is <http://www.iso.ch/iso/en/CatalogueDetailPage.CatalogueDetail?CSNUMBER=26780> . However, a very useful, free informative reference is located at <http://www.cl.cam.ac.uk/~mgk25/iso-time.html> .

For the UBL reference, see <http://docs.oasis-open.org/ubl/cd-UBL-1.0/xsd/common/UBL-UnspecializedDatatypes-1.0.xsd> . For details about the W3C implementation, see the XML Schema Part 2 specification, <http://www.w3.org/TR/xmlschema-2/#date> and <http://www.w3.org/TR/xmlschema-2/#dateTime> .

3.10 Currency Amounts

All monetary values in IAE systems should be expressed in a 20-character format (maximum length), with a maximum of 17 digits to the left of the decimal point and 2 digits to the right, with one position reserved for the decimal point. The highest value is 999,999,999,999,999.99 (without the commas). No commas, spaces, dollar signs or other non-digit characters should be permitted, with the exception of the decimal point (and possibly a negative sign). In most systems, this will be a floating point number, but if stored as a string, these character restrictions must be enforced. In UBL 1.0, the Core Component Type AmountType is used for currency. It is an extension of the XML Schema built-in type xsd:decimal and includes two optional attributes. Although the number of digits is not constrained in UBL, XML Schema allows you to constrain digits using the "fractionDigits" facet (constraint).

For the UBL reference, see <http://docs.oasis-open.org/ubl/cd-UBL-1.0/xsd/common/UBL-CoreComponentTypes-1.0.xsd> . See also the XML Schema Part 2 specification <http://www.w3.org/TR/xmlschema-2/#decimal> .

3.11 Identifiers vs. Codes

The distinction between Core Component Types Identifier and Code is somewhat subtle in UBL 1.0. The definitions from <http://docs.oasis-open.org/ubl/cd-UBL-1.0/xsd/common/UBL-CoreComponentTypes-1.0.xsd> follow:

Code: "A character string (letters, figures, or symbols) that for brevity and/or language independence may be used to represent or replace a definitive value or text of an attribute together with relevant supplementary information."

Identifier: "A character string to identify and distinguish uniquely, one instance of an object in an identification scheme from all other objects in the same scheme together with relevant supplementary information."

[The above link also includes 7-9 attributes for both of the Core Component Types, such as codeListID and identificationSchemeAgencyName.]

In IAE shared systems, there are some elements previously called *SomethingCode* that are actually Identifiers and others called *SomethingID* that are really Codes. As we re-visited each data element from Standard Transactions 1.1, we re-evaluated which was the appropriate designation.

The key determining factor was whether the value set was likely to change frequently or infrequently. For example, DUNS and SSN are updated daily (at least). A DUNS number distinguishes or identifies a specific organization from all other organizations, just as an SSN uniquely distinguishes one individual from all others. DUNS and SSN are therefore Identifiers.

In contrast, countries and states do not change often. Abbreviations or numeric shorthand for countries and abbreviations for states are relatively stable; the set of possible values can be enumerated in a code list. Addition of new countries and new states are infrequent events. Furthermore, the codes used to represent them do not change very often. These are therefore Codes. Less obvious examples include:

(a) A code identifying party receiving transmission; codes agreed to by trading partners. Originally called Application Rcvrs Code (TXN06). We have given this the BIE of Receiving_ Party. Identification. Identifier because it uniquely distinguishes one party from all others.

(b) When considering the type of Indefinite Delivery Vehicle (IDV) contract, there is a finite set of possible values that can readily be enumerated. Therefore, the assigned BIE is Contract. Indefinite Delivery Contract_ Type. Code.

(c) The FIPS Pub. 95 code for the agency of the contracting or funding office that executed or is otherwise responsible for the transaction was assigned the BIE of Contracting_ Organization. Agency_ Identification. Identifier.

3.12 When Other Elements are Necessary

If our set of elements does not provide certain elements that your system needs, we recommend that you look first at UBL and then at TBG-17 for guidance. For example, UBL defines BuildingName and BuildingNumber as optional child elements within the Address xsd:complexType. Since IAE shared systems do not presently separate this information into discrete elements, we have specified only StreetName and AdditionalStreetName. However, you can use BuildingName and BuildingNumber if you need them.

3.13 Acronyms and Abbreviations

Federal acquisition is replete with acronyms and abbreviations. On the one hand, expanding acronyms to form element names removes ambiguity. However, it makes for unnaturally long element names such as CommercialAndGovernmentEntityID and NorthAmericanIndustryClassificationSystemCode that are subject to typing errors and not likely to be the target of a text search since procurement people with think of the acronym.

While the guidance from UBL and various [Naming and Design Rules](#) documents prohibits the use of acronyms and abbreviations, IAE XML element names *may* incorporate acronyms with the following mandatory restrictions:

- The acronym *must* be an established and widely understood acronym in the Federal procurement community. Examples include, but are not limited to: NAICS, PSC, FSC, CAGE, SIC, SSN, TIN, etc. [Note that DUNS is the only approved procurement-related acronym in UBL 1.0.]
- Data definitions *must* expand the acronym, both in the relevant data dictionary and in the XML Schema, each acronym must be expanded with xsd:documentation.
- Business Information Entity (BIE) names used for data dictionary entries (dictionary entry names) *may* also use acronyms.
- Based on the feedback received on Standard Transactions 1.1, we chose to use, where appropriate, the acronyms and abbreviations to keep the Business Information Entity (BIE) names to a manageable size. Although, abbreviations are not permitted (except for ID, which is approved in UBL 1.0). We chose to use abbreviations for the above mentioned reason, e.g. - Alt (Alternate), Cert (Certification).

3.14 Code Lists Gap Analysis and Recommendations

In the first quarter of 2005, the IAE PMO performed an analysis of over a dozen code lists used by various IAE shared systems. Results were published in April 2005 in the document entitled IAE Code Lists Gap Analysis and Recommendations with an accompanying spreadsheet. IAE PMO analysis covers NAICS, CAGE, FSC, PSC, SIC, ISO 3166, as well as various FIPS codes for agencies, congressional districts, countries, and states. All IAE system stewards should consult this gap analysis and follow its recommendations. Many of the data elements listed in our Standard Transactions Vocabulary 2.0 spreadsheet have value constraints based on these code lists. In order to achieve true

interoperability, it is crucial that IAE shared systems migrate towards a single, common authoritative sources for each code list.

Please note that UBL and the various Naming and Design Rules specifications (see next section) discuss an elaborate and robust code list mechanism, based on a common XML Schema that can be implemented by any authoritative source of any code list. For example, if ISO implemented this XML Schema and produced a version of ISO 3166 (country codes) based on the schema, interoperability with UBL-based applications would be achieved. There would never be ambiguity about whether a particular data element was constrained to values from the 2-character alpha, 3-character alpha, 3-digit ISO 3166 variants, English or French or any given version. While the IAE PMO certainly encourages movement toward this approach, virtually all of the code lists on which we depend have not yet, to our knowledge, adopted this XML Schema. We will monitor the situation over time and make appropriate technical updates as necessary and feasible.

3.15 XML Guidance for IAE: Naming and Design Rules

Since the IAE PMO released the document entitled [IAE XML Summary Guidance 1.1](#) in February 2004, a number of XML Naming and Design Rules (NDR) documents have surfaced from OASIS, UN/CEFACT, and the Department of the Navy. Since the various NDRs are closely aligned with the UN/CEFACT [Core Components Technical Specification](#) (which is in turn based on ISO/IEC 11179), the IAE PMO strongly encourages all shared systems and procurement system vendors to study these documents and consider them (along with the CCTS) as the primary sources of XML guidance for IAE.

See Robin Cover's detailed page, [XML Naming and Design Rules Specifications Published by OASIS, UN/CEFACT, and Navy CIO](#) which includes archived copies of the NDRs from three different (but interrelated) sources:

- [Universal Business Language \(UBL\) Naming and Design Rules](#). Publication Date: 15-November-2004. 104 pages. Approved by vote of the OASIS membership as an OASIS Standard. Document identifier: 'cd-UBL-NDR-1.0.1'. OASIS source location: http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=ubl .
- [UN/CEFACT XML Naming and Design Rules](#). Draft 1.1. 14-January-2005. 141 pages. Document identifier: 'NamingAndDesignRules_1.1.doc'. UN/CEFACT source location: <http://www.disa.org/cefact-groups/atg/downloads/index.cfm> .

- [*Department of the Navy XML Naming and Design Rules*](#). Final Version 2.0. Office of the DON, Chief Information Officer. January 2005. 168 pages. Navy source location: <http://www.doncio.navy.mil/> .

Robin Cover's page summarizes, compares, and contrasts the three different NDRs and is therefore itself a valuable resource in understanding these emerging sources of international XML guidance.

3.16 Maintaining and Expanding Standard Transactions

The shared systems are currently in various stages from concept to prototype, redesign and production. The current information exchanges and data elements are expected to increase in number and change over time. To facilitate this growth the IAE Program Management Office will maintain the Standard Transactions v2.0 and will incorporate remaining IAE shared systems e.g. Performance Reporting System. Updates will be published as changes in the IAE shared systems are identified and documented.

The IAE Standard Transactions need to evolve with IAE interoperability requirements and capabilities – both within the IAE domain and with related areas such as finance, asset management and sales, etc. To achieve this goal, agency and industry acquisition community members need to review their interoperability needs on an ongoing basis to identify any desired changes or additions to the Standard Transaction Information Exchanges or Vocabulary. They should also review evolving Federal Registries (e.g., the CORE.gov maintained by GSA for the CIO Council) to identify any data elements, schema, or integration services that could be leveraged by IAE.

Desired additions or changes should be submitted to the IAE Program Management Office by sending email to integrated.acquisition@gsa.gov. You may also request to participate in future discussions about IAE data elements. As part of this process IAE will also arrange for posting of the updated Standard Transactions to the appropriate Federal registry(s) so that they can be shared and reused as widely as possible. The updated Standard Transactions will be shared with the CIO, CFO as well as the CAO communities.

Appendix A: Data Element Standardization Process

This appendix describes the process that the Standard Transactions workgroup uses to develop standard data elements for IAE. Although shown as a sequence here, several “steps” can be done concurrently and some are an iterative process.

Step 1: Identify a community of interest among the major players in the IAE line of business (and related lines of business where appropriate.)

- Identify Subject Matter Experts (SMEs) who are willing to participate in working groups that meet on a regular basis.
- Establish an electronic collaborative environment to support dialog.

Step 2: Focus initially on atomic units of data needed for interoperability (i.e., data that is exchanged among systems or processes), rather than trying to define complete data models for all business processes and systems.

- Start with a bottom-up rather than top-down approach.
- Identify the common building blocks (e.g., Person, Address, etc.) that are likely to be reusable across stakeholders for a given system as well as across the environment.

Step 3: Collect interface control documents and/or, data dictionaries, government regulated element lists, and other descriptions of the elements needed for interchange.

- Initiate data calls, either formally or informally.
- While it is highly desirable to obtain complete data dictionaries and/or formal interface control documents, some stakeholders may not be able to provide this level of detail. Be prepared to accept simple spreadsheets or even database tables. The essential information to capture is:
 - Data elements names
 - Element descriptions
 - Data type or value constraints (length, value ranges, etc.)
 - Whether the element is repeatable in a particular exchange
 - Whether the element is mandatory, optional, or conditional
 - Transactions in which the data element is used

Note: It is important that shared system stewards update the IAE PMO as new versions of data dictionaries become available.

Step 4: Analyze collected element lists across business partners to normalize element names and to identify groupings of related elements as higher-level structures (e.g., object classes). This involves using methodology developed by ISO/IEC, UN/CEFACT and OASIS, in addition to the better-known Unified Modeling Language (UML) techniques. Highlights of these methodologies follow; refer to the cited documents for considerable detail.

- Electronic Business XML (ebXML) is a collaborative effort of two major international organizations: **UN/CEFACT** (United Nations Center for Trade Facilitation and Electronic Business) and **OASIS** (Organization for the Advancement of Structured Information Standards). UN/CEFACT is responsible for the Core Components Technical Specification and Business Process specifications. OASIS oversees the Registry and Repository, Messaging, and Collaboration Protocol specifications.
- The Core Components Technical Specification defines a common set of semantic building blocks that represent the general types of business data in use today. The Core Components methodology provides a way to identify, capture and maximize the re-use of business information to support and enhance information interoperability across multiple business situations.
- All ebXML Core Components conform to ISO/IEC 11179 data element naming conventions (see Appendix B)
- When a Core Component is used in a real business circumstance, it serves as the basis for a Business Information Entity (BIE). For example, ShippingContact and OrderContact are BIEs derived from the more generic Contact Core Component.
- Related BIEs are grouped together to form an Aggregate Business Information Entity (ABIE). Example: US_ Person. Details and US_ Address. Details.
- When one ABIE references another ABIE, you have an Association Business Information Entity (ASBIE). For example: US_ Person. US_ Residence. US_ Address and US_ Person. US_ Official. US_ Address .
- A major goal of the data vocabulary definition process is to arrive at a set of BIEs based on Core Components in the context of the Line of Business of the initiative.
- Schemas will be developed based on information exchange requirements identified via business process modeling. Information and process modeling and the XML schema creation process should be separate and distinct steps.

Step 5: Generate or create XML Schema based on UBL methodology, including the identification of data constraints such as enumerations, code lists, value ranges, character patterns, lengths, etc.

- Schema development will take place as a team effort with functional data experts, business experts, program managers, and IT specialists all involved. (These are likely to be the same or similar team needed for the earlier data modeling phase.)
- The Universal Business Language (UBL) Library is:
 - An XML-based business language
 - Built upon existing EDI and XML business-to-business vocabularies
 - Applicable across all industry sectors and domains of electronic trade
 - Designed to be modular, reusable, and extensible
 - Non-proprietary and royalty-free
 - Intended to become an international standard for electronic commerce
 - Addresses only a small subset of elements needed for IAE
- The UBL Library has been designed as a collection of object classes and associations expressed as a conceptual model. Specific document types are then assembled from these Business Information Entities (BIEs) by organizing them into a specific hierarchy. These hierarchical models are then transformed using the UBL Naming and Design rules into XML Schema syntax.
- Three levels of content components are defined in UBL:
 1. *Atomic components* that hold individual pieces of information typically represented by primitive data types (e.g., "text," "Boolean," "date") or data types readily derived from these. Example: PostalCode of type "text".
 2. *Aggregate components* that hold logically related groups of atomic components and sub-aggregates. Example: Address containing StreetAddress, PostalCode, StateOrProvince, and Country.
 3. *Document components* that assemble atomic and aggregate components to form a self-contained logical unit. The business process context provides the requirements for which documents are to be assembled. Example: transactional messages within a business process.
- Aggregate Business Information Entities (ABIEs) become the `xsd:complexType`s of the XML Schema

Step 6: Contribute XML Schema to the CORE.gov to increase the likelihood of reuse:

- Contact IAE PMO to contribute your XML Schemas to CORE.gov.
- If you are reluctant to contribute to CORE.gov at this stage, contributions should be placed in an IAE registry or web site where they are available to the IAE acquisition community.

FUTURE - Step 7: Re-factor to harmonize with vocabularies from international groups such as the UN/CEFACT TBG-17 effort.

- While the IAE is focused on efficiencies and reuse within the federal government, it should leverage international standards as much as possible. The process outlined above employs the methodology developed by several international groups.
- The BIEs, Core Components, and XML Schema developed by the IAE should be contributed to the international efforts upon whose methodology they were developed.
- Such contributions may require IAE to modify its schema to some extent, but the result will be improved data exchange capabilities at the international level.

The main reference for this process is the “IAE Summary XML Guidance” which contains a complete reference section. Visit acquisition.gov, click About IAE link, and then “IAE Summary XML Guidance V. 1.1, [2/4/04]”.

Appendix B: Creating ISO/IEC 11179 Names

The description that follows is a considerable simplification of a more involved process. As such, developers are directed to ISO and UBL documentation (see [References](#)) for the details.

“ISO/IEC 11179 part 5 [see references] provides a standard for creating data elements. This standard employs a dot notation and white space to separate the various parts of the element and multiple words in a part respectively. In order to meet XML requirements for component naming, the ISO 11179 name must be converted to a [XML] *Name Token*¹. The ISO 11179 part 5 standard provides a way to precisely create a data element definition and name. Using or referencing this name in a schema provides analysts with a better understanding of XML component semantics, while using business terms as element names improves readability. Requiring types to conform to ISO 11179 conventions will facilitate automated analysis of schema components during any harmonization efforts. The upper and lower camel case conventions are adopted from ebXML.” [DON XML Developer’s Guide 1.1, Section 7.1.3.2]

An ISO 11179- compliant data element name consists of three parts:

An “*Object Class*” term, which describes the kind of thing to which you refer. This Object Class may consist of one or more words, some of which may be context terms. For example, the ISO/IEC 11179 name ‘Acoustic Signal. Frequency. Measure’ has the Object Class ‘Acoustic Signal’. As another example, consider that the ISO/IEC 11179 name ‘EFT_ Payment. Authorization. Date’ has the Object Class ‘Payment’.

A “*Property Term*” which is the property of the thing to which you refer, which may consist of one or more words. For example, the ISO/IEC 11179 name ‘Acoustic Signal. Frequency. Measure’ has the Property Term ‘Frequency’. Also, the ISO/IEC 11179 name ‘EFT_ Payment. Authorization. Date’ has the Property Term ‘Authorization’.

A “*Representation Term*” which identifies allowable values for an element. This list is taken from an enumerated list of allowable representation types (see below). For example, the ISO/IEC 11179 name ‘Acoustic Signal. Frequency. Measure’ has the Representation Term ‘Measure’. Another example is the ISO/IEC 11179 name ‘EFT_ Payment. Authorization. Date’ that has the Representation Term ‘Date’.

Each term may have an additional *qualifier* term (signified by a trailing underscore) to provide additional information. In the example above, the Object Class has the qualifier ‘EFT_’ (as in “Electronic Funds Transfer”).

¹ An XML Name Token is a string that begins with a letter and contains only certain characters. In particular, spaces and underscores are not permitted in a Name Token.

Other examples of ISO/IEC 11179 names include Product. NAICS. Code and Organization. DUNS. Identifier, neither of which have qualifiers.

ISO/IEC 11179 Data Element Name	Qualifier (optional)	Object Class	Property Term	Representation Type	XML Element Name
Acoustic Signal. Frequency. Measure	[none]	Acoustic Signal	Frequency	Measure	AcousticFrequency
EFT_ Payment. Authorization. Date	EFT_	Payment	Authorization	Date	EFTPaymentAuthorizationDate
Product. NAICS. Code	[none]	Product	NAICS	Code	ProductNAICSCode
Organization. DUNS. Identifier	[none]	Organization	DUNS	Identifier	OrganizationDUNSID

Note: Although the above table only shows qualifiers used in conjunction with the Object Class, they may also precede Property Terms and/or Representation Types. Also, the “dot space” notation is intentional to aid spell checking.

“XML components **MAY** be named after ISO/IEC 11179 data element names: XML Elements **SHOULD** be named after ISO/IEC 11179 data element definitions *when business terms do not exist*. XML Attributes **SHOULD** be named after ISO/IEC 11179 data elements. XML Schema data types **MUST** be named after ISO/IEC 11179 data elements.”

Note the distinction that XSD (XML Schema) data types **MUST** be based on ISO/IEC 11179 names, whereas XML elements **MAY** be based on more familiar business terms.

The XML Schema data type based on the first example above would be AcousticSignalFrequencyMeasure. The XML element name would be <AcousticFrequency>, assuming this was the common business term. Similarly, the other examples result in the XML element names EFTPaymentAuthorizationDate, ProductNAICSCode, and OrganizationDUNSID.

Consider another example, one which involves child elements. The ISO/IEC 11179 name “Address. City. Text” results from the Object Class “Address”, the Property Term Qualifier “City”, the Property Term Noun “Name”, and the Representation Type

“Text”. The XML Schema type would be “AddressCityName” and the XML element name would be <AddressCity>.

The allowable Representation Types (known as Core Component Types in UBL) are:

- Amount
- Binary Object (plus Graphic, Picture, Sound and Video)
- Code
- Date Time (plus Date and Time)
- Identifier
- Indicator
- Measure
- Numeric (plus Value, Rate and Percent)
- Quantity
- Text (plus Name)

Those shown in parentheses are known as Secondary Representation Types.

Appendix C: Key Acquisition Scenarios

1	Open Market -Not Simplified Acquisition
2	Two Step Sealed Bid
3	Sole Source (Open Market -Not Simplified)
4	Unsolicited Proposal
5	Sealed Bid
6	Open Market Simplified \$100,000 - 5M Commercial Item
7	Open Market Simplified \$25,001-100,000
8	Open Market Simplified \$10,001-25,000
9	Open Market Simplified \$2,501-10,000
10	Small Business Innovation Research (SBIR)
11	Delivery / Task Orders Against Indefinite Delivery Vehicle (IDIQ Contract)
12	Orders Against FSS Schedule
13	Orders Against Multiple Award Schedule
14	Economy Act
15	Micro Purchase (Stand Alone Single Purchase)
16	Purchase Cards / Convenience Checks / Third Party Drafts

Appendix D: IAE Acronyms

BPN	Business Partner Network
CADO	Contract Award Documents Online
CCR	Central Contractor Registration
CPARS	Contractor Performance Assessment Reporting System (DoD)
CPS	Contractor Performance System (NIH)
D&B	Dun and Bradstreet
EEOC	Equal Employment Opportunity Commission
EPLS	Excluded Parties Listing System
eSRS	Electronic Subcontracting Reporting System
FBO	Federal Business Opportunities (FedBizOpps)
FedReg	Federal Registration Application
FedTeDS	Federal Technical Data Solution
FMS TOP	Financial Management Service Treasury Offset Program
FPDS-NG	Federal Procurement Data System Next Generation
Grantee Reg	Grantee Registration
ICD	Interagency Contracts Directory
IGT	Intra-governmental Transactions
IPAC	Intra-governmental Payment and Collection System (Treasury)
NABS	Native American Business System
ORCA	Online Representations and Certifications Application
PPDB	Past Performance Data Base (NASA)
PPIMS	Past Performance Information Management System (Army)
PPIRS	Past Performance Information Retrieval System
SBA PRO-Net	SBA Procurement Marketing Network
VETS-100	Veterans' Employment and Training Service (DOL)
WDOL	Wage Determinations On-Line

Appendix E: Glossary of Terms

Term	Meaning
ABIE	Aggregate Business Information Entity (ABIE) - A collection of related pieces of business information that together convey a distinct business meaning in a specific <i>Business Context</i> . Expressed in modeling terms, it is the representation of an <i>Object Class</i> , in a specific <i>Business Context</i> . In XML Schema, an ABIE becomes a complex type.
Acquisition Backbone Scenario	A representation of the most complex type of acquisition process. The acquisition Backbone Scenario is based on Open Market Not Simplified purchases and includes the majority of information exchanges found in all acquisition scenarios.
Acquisition Information Reporting (AIR)	The IAE Acquisition Information Reporting (AIR) business area will be the focal point for all acquisition reporting across IAE shared and partner systems.
Acquisition Process Scenarios	16 key acquisition scenarios have been documented. Major activities for each scenario were identified along with any information exchanges with external applications used to support the activity.
Acquisition Scenarios	A variation of the IDEF ICOM Modeling approach documenting the specific activities for a particular type of acquisition process. For each activity, the supporting information exchanges, information sources, and roles and controls are documented.
Agency Back -Office Applications	Procurement and finance applications maintained by individual agencies or bureaus to handle day-to-day operations.
ASBIE	Association Business Information Entity - A Business Information Entity that represents a complex business characteristic of a specific Object Class in a specific Business Context. It has a unique Business Semantic definition. An Association Business Information Entity represents an Association Business Information Entity Property and is associated to an Aggregate Business Information Entity, which describes its structure. An Association Business Information Entity is derived from an Association Core Component.
Authentication	The process of identifying an individual, usually based on a username and password. Authentication merely ensures that the individual is who he or she claims to be, but says nothing about the access rights of the individual
Authorization	The process of giving individuals access to system objects based on their identity. For example, system administrators have authorized access to data that regular users do not.

BIE	<p>Business Information Entity (BIE) – A piece of business data or a group of pieces of business data with a unique Business Semantic definition. A Business Information Entity can be a Basic Business Information Entity (BBIE), an Association Business Information Entity (ASBIE), or an Aggregate Business Information Entity (ABIE). There are three different categories of Business Information Entities:</p> <ol style="list-style-type: none"> 1. Basic Business Information Entity 2. Association Business Information Entity, and 3. Aggregate Business Information Entity. <p>The most primitive of these is the Basic Business Information Entity (BBIE). A Basic Business Information Entity is a Basic Core Component used in a specific Business Context.</p>
Business Partner Network	An IAE Business Area --the Business Partner Network is the business area for the trading partners for the government and, at its core, is the Central Contractor Registration (CCR) system.
Business Term	Business terms are commonly recognized words that are more appropriately used as XML element names, rather than the often-esoteric ISO/IEC 11179 conventions. Business terms improve the readability of schemas and instances, while the ISO/IEC 11179 names provide more precise and structured semantics.
CCR	Central Contractor Registration (CCR) system is a single data entry system for vendor information collection and validation that can be shared with agency contract writing systems.
CIOC XDG	Chief Information Officers Council XML Developer’s Guide
COI	Community of Interest
CORE.gov	Component Organization and Registration Environment - the government source for business process and technical components. CORE.GOV is the place to search for and locate a specific component that meets your needs, or to find components you can customize to meet your unique requirements. You can also recommend components for inclusion in CORE.GOV.
Constraints	Restrictions placed on data values. For example, text strings can be constrained to minimum and maximum number of characters. Integers can be constrained to a range of values. Text strings can also be constrained to a fixed set of choices (as in code lists, also known as enumerations).
Core components	A set of universal components that are contextually neutral and can be used across all domains to express semantics of common business concepts.
DOD End-to-End Procurement Analysis	A Department of Defense Analysis of the Procurement processes resulting in the development of Process Model and Systems Maps published on March 31, 1999
DTD	Document Type Definition. DTD technology predates XML Schema. DTDs are models of XML documents, but they cannot specify data types. Federal XML guidance indicates that DTDs should <i>not</i> be used for new efforts that are data-oriented; use XML Schema instead.

EbXML	ebXML (Electronic Business using eXtensible Markup Language), sponsored by UN/CEFACT and OASIS, is a modular suite of specifications that enables enterprises of any size and in any geographical location to conduct business over the Internet. ebXML provides a standard method to exchange business messages, conduct trading relationships, communicate data in common terms and define and register business processes. See http://ebxml.org/
eMarketplace	An IAE Business Area; eMarketplace will provide market research and on-line purchasing capabilities for buyers and sellers.
FEAPMO	Federal Enterprise Architecture Program Management Office, which releases the various Reference Models (RMs), the source of governance for much of these guidelines; see PRM, BRM, SRM, DRM, and TRM. See http://feapmo.gov
Federal Registry	A single logical entry point for accessing reusable components potentially located in different physical locations, such as in individual agency databases or repositories.
IDEF	IDEF was (derived from the Structured Analysis and Design Technique) is a method designed to model the decisions, actions, and activities of an organization or system. IDEF modeling identifies the Inputs, Controls, Outputs, and Mechanisms (ICOMs) of a system.
Information Exchange	As defined for IAE: The exchange of information between a person or system and other systems. Information exchanges support specific activities of the acquisition process.
Intra-governmental Transactions (IGT)	An IAE Business Area whose goal is to transform intra-governmental ordering and billing, reduce payment and collection problems, and improve revenue and expense elimination process for preparing consolidated financial statements.
ISO/IEC 11179	Information Technology – Specification and Standardization of Data Elements is a 6-part ISO standard providing a framework and methodologies for developing, documenting, and registering standard data elements. The ISO 11179 standard is a multipart standard that includes the following parts: Parts: 1. Framework, 2. Classification, 3. Registry Metamodel and Basic Attributes, 4. Formulation of Data Definitions, 5. Naming and identification principles, and 6. Registration. [More formally, this is called ISO/IEC 11179, for International Organization for Standardization/International Electrotechnical Commission.]
ISO 7273	ISO standard data elements included intended to facilitate interchange of data in international trade. These standard data elements can be used with any method for data interchange on paper documents as well as with other means of data communication.
JFMIP	Joint Financial Management Improvement Program was a joint and cooperative undertaking of the U.S. Department of the Treasury, the General Accounting Office, the Office of Management and Budget, and the Office of Personnel Management working in cooperation with each other and other agencies to improve financial management practices in government. Its work has transferred to the CFO Council. See http://www.jfmip.gov/jfmip/ .

Namespace	In XML, a namespace is a conceptual space to which element and attribute names may be assigned. Using namespaces prevents name collision (ambiguity) when the same element name appears in multiple XML vocabularies in the same document. A namespace is associated with a URI (Uniform Resource Identifier) which is either a URL (Uniform Resource Locator) such as http://www.w3.org/2001/XMLSchema or a URN (Universal Resource Name) like urn:us:gov:gsa:iae .
OASIS	Organization for the Advancement of Structured Information Standards. OASIS is a not-for-profit, global consortium that drives the development, convergence and adoption of e-business standards.
Object Class Term	A component of the name of a Core Component or Business Information Entity which represents the Object Class to which it belongs.
Partner Service	Applications which provide data to and interoperate with the IAE but are not managed by the IAE Program Management Office.
Payload (XML)	Protocols and frameworks such as SOAP, BizTalk , and ebXML use XML to mark up message header information necessary for binding, reliable messaging, and security. The term ' <i>payload</i> ' refers to the XML being transmitted that contains the actual business information communicated.
Portal Services Layer	The Web portal services layer is responsible for the delivery of all applications, services, and data to the user communities accessing the portal. This layer also provides Web portal services (for example, security, aggregation, single sign-on, and delegated administration services), communication services, policy management services, and user management services.
Property Term	A semantically meaningful name for the characteristic of the <i>Object Class</i> that is represented by the <i>Core Component Property</i> . It shall serve as basis for the <i>Dictionary Entry Name</i> of the <i>Basic</i> and <i>Association Core Components</i> that represents this <i>Core Component Property</i> .
Qualifier Term	A word or group of words that help define and differentiate an item (e.g. a <i>Business Information Entity</i> or a <i>Data Type</i>) from its associated items (e.g. from a <i>Core Component</i> , a <i>Core Component Type</i> , another <i>Business Information Entity</i> or another <i>Data Type</i>).
Representation Term	The type of valid values for a Basic Core Component or Business Information Entity. This is similar to a data type but may convey business context (e.g., Amount).
Shared Systems	Applications that are managed and coordinated through the Integrated Acquisition Environment.
SME	Subject Matter Expert [term sometimes used for Small- and Medium-sized Enterprise]
Standard	As defined in OMB Circular No. A-119: (1) Common and repeated use of rules, conditions, guidelines or characteristics for products or related processes and production methods, and related management systems practices. (2) The definition of terms; classification of components; delineation of procedures; specification of dimensions, materials, performance, designs, or operations; measurement of quality and quantity in describing materials, processes, products, systems, services, or practices; test methods and sampling procedures; or descriptions of fit and measurements of size or strength

Standard Transactions	An exchange of information with one or more systems following agreed upon business rules and using standard data elements
Standard Vocabulary	The IAE Standard Vocabulary will provide agencies and vendors that develop and support procurement applications a standard vocabulary for acquisition related data elements. The standard vocabulary will facilitate consistent and efficient exchange of data between systems within IAE and external to IAE. The IAE Standard Vocabulary is the aggregate of all interoperable data elements that are passed throughout the environment via Standard eTransactions.
UBL	Universal Business Language is intended to become an international standard for electronic commerce freely available to everyone without licensing or other fees. The OASIS UBL TC (Technical Committee) is developing a standard library of XML business documents (purchase orders, invoices, etc.) by modifying an already existing library of XML schemas to incorporate the best features of other existing XML business libraries. The TC will then design a mechanism for the generation of context-specific business schemas through the application of transformation rules to the common UBL source library.
UN/CEFACT	United Nations Center for Trade Facilitation and Electronic Business - An organization of government and industry representation from around the world working to simplify world trade.
TBG 17	A workgroup of the Trade and Business Process Group of UN/CEFACT. The purpose of the project is to take responsibility for ensuring the consistency and harmonisation of Business Process models and Core Components across business domains and sectors by developing a concise and well-defined library of business terms and business data semantic definitions for the structuring of data exchanges in a syntax neutral manner.
Vendor Systems	Non Federal applications; usually of companies doing business with the Federal Government.
W3C	The World Wide Web Consortium is a vendor consortium, not an accredited standards body, however, its products have such a strong influence over commercial software implementations that its work must take precedence over even accredited standards bodies for matters related to the WWW.
Web service	A Web service is a software system designed to support interoperable machine-to-machine interaction over a network. It has an interface described in a machine-processable format (specifically WSDL). Other systems interact with the Web service in a manner prescribed by its description using SOAP-messages, typically conveyed with HTTP (Hypertext Transfer Protocol) using an XML serialization in conjunction with other XML-related standards. In simpler terms, a Web service is a programmatic interface that enables application to application communication.
XML	Extensible Markup Language, a general syntax used to create domain-specific vocabularies. XML is focused on structure rather than presentation. Examples of XML vocabularies are ebXML, UBL, and XML Schema.

XSD / XML Schema	XML Schema. An XML Schema is a data model that defines in detail the structure and data types involved in a XML message (or document). The XML message can be validated against the XML Schema. XML Schemas express shared vocabularies and allow machines to carry out rules made by people. They provide a means for defining the structure, content and semantics of XML documents
XSLT	Extensible Stylesheet Language Transformations, a way to convert XML to HTML, text, or different XML. For example, XSLT can be used to map IAE Standard Vocabulary to an organization's shared system's XML vocabulary or to EDI.

Appendix F: References

FEA Data Reference Model	Data Reference Model, Volume 1, Version 1.0 from the Federal Enterprise Architecture, released September 2004. Available from, http://www.whitehouse.gov/omb/egov/a-5-drm.html
ISO/IEC 11179 – Part 5 Information technology -- Specification and standardization of data elements -- Part 5: Naming and identification principles for data elements	http://isotc.iso.ch/livelink/livelink/fetch/2000/2489/Ittf_Home/PubliclyAvailableStandards.htm
Universal Business Language (UBL), Version 1.0	http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=ubl
UN/CEFACT Core Components Technical Specification, Part 8 of the ebXML Framework; 15 November 2003, Version 2.01	http://www.unece.org/cefact/ebxml/CCTS_V2-01_Final.pdf
TBG-17: UN/CEFACT Trade and Business Process Group, Version 2.01	http://www.disa.org/cefact-groups/tbg/wg/tbg17_main.cfm
IAE Summary XML Guidance, 2- February-2004, Version 1.1	Visit http://acquisition.gov , click About IAE link, and then “IAE Summary XML Guidance V. 1.1, [2/4/04]”.
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