Data Management Program: Metadata Architecture for Data Sharing

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# Table of Contents

Acknowledgments ........................................................................................................... vi

1.0 The Enterprise Environment ...................................................................................... 1
  1.1 The Data Environment ............................................................................................. 1
  1.2 The Data Sharing Challenge .................................................................................... 2
  1.3 Metadata .................................................................................................................. 3
  1.4 A Very Key Point ...................................................................................................... 4
  1.5 Remainder of this Paper .......................................................................................... 6
  1.6 The Bottom Line ...................................................................................................... 7

2.0 Metadata Environment Success Factors ..................................................................... 8
  2.1 Metadata Management ............................................................................................ 8
  2.3 “8320.1” DDDS Data Standardization .................................................................. 12
    2.3.1 Flawed Data Standardization Model ................................................................. 13
    2.3.2 No Accommodation for Enterprise Wide Data Architectures ..................... 14
    2.3.3 No Accommodation for Multiple Implementation Technologies ............. 14
    2.3.4 Having a Centralized Data Standardization Authority ............................... 15
    2.3.5 “8320.1” Data Standardization Summary ....................................................... 15
    2.3.6 “8320.1” Lessons Learned .............................................................................. 16
  2.4 The “8320.2” Data Sharing Directive ..................................................................... 18
  2.5 Metadata Management Summary .......................................................................... 20

3.0 Shared Data Architecture .......................................................................................... 21
  3.1 Data Asset Products ................................................................................................. 25
  3.2 Shared Metadata, The Key to net-centric Success .................................................. 32
    3.2.1 XML Schemas .................................................................................................. 32
      3.2.1.1 IT System Centric Alternative ................................................................. 33
      3.2.1.2 Data Centric Alternative ...................................................................... 33
      3.2.1.3 Responses Key Points ........................................................................... 34
      3.2.1.4 GAO Study Recommendations .............................................................. 35
    3.2.2 Data Asset Catalogs ......................................................................................... 35
    3.2.3 ISO 11179 Based Shared Data Elements ....................................................... 36
    3.2.4 Shared Data Segments ...................................................................................... 47
    3.2.6 Critical Concepts in this Shared Metadata Modeling Environment ........... 55
    3.2.7 Shared Metadata Environments ..................................................................... 55
    3.2.8 Federated Metadata Repository Environments ............................................. 56
    3.2.9 Quality Data Management in a Net-centric Environment ............................ 56
  3.3 Name Management .................................................................................................. 57
  3.4 Value Domain Management .................................................................................... 62
  3.5 XML Schema Management ..................................................................................... 65
  3.6 Metadata Catalog Management ............................................................................... 67
3.7 Shared Data Architecture Summary .................................................. 68

4.0 Metadata Architecture for Data Sharing Summary and Way Ahead ............... 69
4.1 Way-Ahead Actions ............................................................................. 70
4.2 The Bottom Line Reprise ................................................................. 71
Figures

Figure 1. Metadata Repository Reference Model .................................................. 8
Figure 2. Data instances for the levels and application pairs. ............................. 9
Figure 3. Technical, System, and Operation Architecture Views along with Data Asset Products ......................................................................................... 27
Figure 4. DoD Process of finding and creating DDDS “data elements.” ............... 37
Figure 5. ISO 11179 essential data model for data elements. .............................. 39
Figure 6. Example of an ISO 11179 data element, Supply Item Resource Quantity .... 40
Figure 7. Example of an ISO 11179 data element, Person Grade Code .............. 40
Figure 8. Comprehensive metadata model to manage data models ..................... 42
Figure 9. Logistics example from the five layers of metadata for data model management .... 42
Figure 10. Mapping of Shared Data Segments to Database Tables within Schemas ... 48
Figure 11. ISO 11179 Data Element Layer and Conceptual Data Model Layer .......... 50
Figure 12. Characteristics of the Conceptual Data Model Layer ......................... 51
Figure 13. Characteristics of the Logical Data Model Layer ............................. 52
Figure 14. Characteristics of the Physical Data Model Layer .............................. 53
Figure 15. Characteristics of the View Model Layer .......................................... 54
Figure 16. Metadata data model to manage business fact names ....................... 59
Figure 17. Example of semantics associated with the attribute, Hourly Wage ........ 60
Figure 18. Name management in action ......................................................... 62
Figure 19. Metadata model for value domain management ................................ 62
Figure 20. Complex metadata model for value domain mappings ...................... 64
Figure 21. Metadata model infrastructure to support automatic XLM schema construction. 66
Figure 22. Integration of a metadata registry and a metadata repository ............ 67
Tables

Table 1. Net-centric data goals, definition, and example. .......................... 6
Table 2. Net-centric goals along with data management support. ..................... 25
Table 3. Identification of Data Asset Products within DoDAF Architecture Views ........ 30
Table 4. Interrelationship between Data Asset Products and DoDAF Views ............. 31
Table 5. Meta attributes for context independent and dependent business facts. ........ 58
Table 6. Semantics associated with the attribute, Hourly Wage. ....................... 61
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1.0 The Enterprise Environment

Enterprises are transforming themselves into a fully digitized network-centric environments. The core of the net-centric environment is the data that enables effective decisions. By net-centric, it is meant that the network (including its infrastructure of hardware and software) is at the center of information exchange rather than one or more database or information systems. It is however well recognized that the information exchanged over the network is valuable if and only if the databases and information systems that are the network’s data sources exist in a high quality, reliable data management environment. This transformation is motivated by the need to derive the maximum utility from all relevant data assets and to ensure information superiority throughout the full spectrum of valued information exchanges.

No one doubts the need for information superiority. Just “google” the phrase and see all the references from across industry and government. This superiority is only an advantage when contextualized data can become information, which then can be converted into superior knowledge leading to better decisions. During the conduct of collaborative operations, "interoperability" is a mandate, especially in terms of communications, common logistics items, and information sharing. Information systems and equipment that enable a relevant common operational picture must work from shared networks that can be accessed by any appropriately cleared participant.

1.1 The Data Environment

The challenge of an enterprise’s strategic information policy is for all mission critical information systems to be interoperable. One aspect of interoperability is data interoperability. Data interoperability is the ability to reuse data from another information system without any intermediate transformation and human intervention.

Three examples from the U.S. Department of Defense illustrate the lack of data interoperability. In stark contrast to data interoperability as we defined it, these examples demonstrate the current way of doing business, which is point to point exchange of data via messages and translators. In this environment, every database configuration board considers the standards from their community of interest (COI) to be "the standard".

As a first example, one of these COIs uses a complex digital message protocol, the Collaborative Variable Message Format (JVMF). According to Edgar Dalrymple (Crosstalk, February 2002, p. 25):

The specification for the JVMF message protocol is the Technical Instruction Design Plan that is maintained by the Army’s Communication and Electronics Command (CECOM). The specification is effectively maintained as a database that is known as the Variable Message Format (VMF) Integrated Database (VID). The VID defines the possible data fields and their associated parameters, structure, and the message cases and conditions. Cases and conditions are assertions.