
DDI Lifecycle (3.3) Technical Guide

Release 3.3 (2020)

DDI

Jun 16, 2020

Table of contents

1	About	3
1.1	Copyright & Licence	3
1.1.1	Licence	3
1.1.2	Attribution	3
1.1.3	Notices	3
1.2	Contacting Us	4
1.3	Contributors	4
1.3.1	Technical Committee (TC)	4
1.3.2	Past Members and Invited Experts	4
1.3.3	Substantive Working Group Members	5
1.3.4	DDI Alliance Members	6
2	Overview	9
2.1	Using the DDI Model	9
2.1.1	Prototype Serializations of the Model	9
2.2	Using the HTML Field Level Documentation	10
2.3	Change Log	12
2.3.1	Summary of Additions	12
2.3.2	Summary of Changes	12
3	Relationship to Other Standards	15
3.1	DDI Codebook (DDI-C) and earlier versions	15
3.2	Dublin Core and MARC	15
3.3	GSIM (Generic Statistical Information Model)	16
3.4	ISO/IEC 11179	16
3.5	ISO 19115 - Geography	17
3.6	Statistical Data and Metadata eXchange	18
3.7	Metadata Encoding and Transmission Standard (METS)	18
3.8	PREMIS	19
3.9	XHTML Tags Support by DDI	19
3.9.1	Block Elements	19
3.9.2	Inline Elements	20
3.9.3	List Elements	20
3.9.4	Table Elements	21
3.9.5	Unsupported Elements	21
4	Structural Features	23

4.1	Exchange structures	23
4.2	Maintainable structures	24
4.2.1	Modules	24
4.2.2	Schemes	26
4.3	Scheme Groups	28
4.4	Organizing Publication Package Contents	28
4.4.1	Sequence of ResourcePackage, Group, and StudyUnit	29
4.4.2	Maintainable Modules, Choice of Inline or by Reference	29
4.4.3	Maintainable DDI Schemes, Inline Only	30
4.5	Managing Metadata Over Time	30
4.6	Versioning	31
5	General Structures	33
5.1	Identification	33
5.1.1	Scope of Uniqueness	34
5.1.2	Type of Identifier	34
5.1.3	Structure of the URN	34
5.2	Identifiable, Versionable, and Maintainable	35
5.2.1	Identifiable	36
5.2.2	Versionable	37
5.2.3	Maintainable	40
5.3	Modules and Schemes	41
5.3.1	Reference and Scheme Reference Type	43
5.4	Administrative and Payload Metadata	45
6	Common Structures	47
6.1	DDI Instance and DDI Fragments	47
6.2	Strings	47
6.3	Citation and Coverage	48
6.4	Dates	49
6.4.1	Usage	50
6.4.2	Examples	50
6.5	Name, Label, and Description	50
6.5.1	Name	50
6.5.2	Label	51
6.5.3	Description	51
6.6	Notes	51
6.7	User Attribute Pairs	52
6.8	In / Out Parameter, Binding and Command Code	52
6.8.1	InParameter, OutParameter, Binding	52
6.8.2	Command Code	53
6.9	Quality Descriptions	53
6.9.1	Metadata Quality	54
6.9.2	Quality Statement	54
6.9.3	Data Quality	54
7	Specific Structures	57
7.1	Administration	57
7.2	Comparison	57
7.3	Data Capture	57
7.3.1	Questions	58
7.3.2	ControlConstructs	59
7.3.3	Other	59
7.4	Data Description	60

7.4.1	Represented Variable	60
7.5	Foundational	61
7.6	Geographic	61
7.7	Grouping	61
7.8	Schemes	62
7.9	Statistical Classification	63
7.10	Study	64
7.10.1	Archive	64
7.10.2	Group	66
7.10.3	StudyUnit	66
7.11	Survey Development	66
7.11.1	Sampling	66
7.11.2	Data Capture Development	67
7.11.3	Weighting	69
8	Examples	71
8.1	Archive	71
8.2	Citation	75
8.3	Dates	75
8.4	In / Out Parameter, Binding	77
8.5	Note	81
8.6	Quality Statement	83
8.7	Questionnaire Development	85
8.8	Questions	89
8.9	Representations	97
8.10	Represented Variable	105
8.11	Sampling	107
8.12	Statistical Summary	110
8.13	Weighting	113



DATA DOCUMENTATION INITIATIVE

1.1 Copyright & Licence

DDI-Lifecycle Specification (Version 3.3) Copyright @ 2020 DDI Alliance. All Rights Reserved

<http://www.ddialliance.org/>

1.1.1 Licence

The DDI-Lifecycle Specification (Version 3.3) is free software you can distribute it and/or modify it under the terms of the Creative Commons Attribution 4.0 International (CC BY 4.0) licence,

This is a human-readable summary of (and not a substitute for) the [license](#)

You are free to:

- Share - copy and redistribute the material in any medium or format
- Adapt - remix, transform, and build upon the material for any purpose, even commercially.

The licensor cannot revoke these freedoms as long as you follow the license terms.

1.1.2 Attribution

You must give appropriate credit, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. No additional restrictions. You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.

1.1.3 Notices

You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation. No warranties are given. The license may not give you all of the

permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material.

1.2 Contacting Us

Comments and questions on the content of this document the specification or more generally should be directed to the Technical Committee mailing list <<mailto:ddi-srg@icpsr.umich.edu>> or the Technical Committee Chair, Wendy Thomas wlt@umn.edu.

1.3 Contributors

1.3.1 Technical Committee (TC)

Current Leadership

- Wendy Thomas, Minnesota Population Center, Chair [2006-], Vice Chair [2004-2005]
- Jon Johnson, CLOSER, UCL, Vice Chair [2016-]

Current Members and Invited Experts

- Johan Fihn, Swedish National Data Service
- Oliver Hopt, GESIS - Leibniz Institute for the Social Sciences
- Larry Hoyle, University of Kansas
- Jeremy Iverson, Colectica
- Daniel Gillman, Bureau of Labor Statistics
- Jay Greenfield, BAH
- Olof Olsson, Swedish National Data Service
- Flavio Rizzolo, Statistics Canada
- Dan Smith, Colectica

1.3.2 Past Members and Invited Experts

- Cavan Capps, Invited expert
- Mark Diggory, Harvard-MIT Data Center
- Guillaume Duffes, INSEE
- J Gager, Technical expert
- Arofan Gregory, Lead technical expert
- Pascal Heus, World Bank, Development Data Group (DECDG)
- I-Lin Kuo, Invited expert
- Ken Miller, UK Data Archive

- Chris Nelson, Technical expert
- Jostein Ryssevik, Open Data Foundation, Chair [2004-2005], Vice Chair [2006]
- Oliver Watteler, GESIS - Leibniz Institute for the Social Sciences
- Joachim Wackerow, GESIS - Leibniz Institute for the Social Sciences, Vice Chair [2007-2016]

1.3.3 Substantive Working Group Members

- Iris Alfredsson, Swedish National Data Service (SND)
- Atle Alvheim, Norwegian Social Science Data Service (NSD)
- Titto Assina, UK Data Archive
- Phil Bardsley, University of North Carolina
- Sandra Cannon, Invited expert
- Gina-Qian Cheung, Institute for Social Research, University of Michigan
- Karl Dinkelmann, Institute for Social Research, University of Michigan
- Pat Doyle, U.S. Census Bureau
- Ilona Einowski, University of California, Berkeley - UCDATA
- Janet Eisenhower-Smith, University of Wisconsin
- Fred Gey, University of California, Berkeley - UCDATA
- Peter Granda, ICPSR
- Ann Green, Invited expert
- Lon Hofmann, Invited expert
- Sanda Ionescu, ICPSR
- Jeremy Iverson, Invited expert
- Reto Hadorn, Swiss Data Archive for the Social Sciences (SIDOS)
- Taina Jaaskelainen, Finnish Data Archive
- Peter Joftis, ICPSR
- Chryssa Kappi, Invited expert
- Mari Kleemola, Finnish Social Science Data Archive
- Hans Joergen Marker, Danish Data Archive
- Mark G. Maynard, Roper Center, University of Connecticut
- Katherine McNeill-Harman, MIT
- Pam Miller, UK Data Archive
- Meinhard Moschner, GESIS - Leibniz Institute for the Social Sciences
- Ron Nakao, Stanford University
- Tom Piazza, University of California, Berkeley - Computer-Assisted Survey Methods Program
- Pilar Rey del Castillo, Centro De Investigaciones Sociologicas (CIS), Spain
- Ed Ross, Invited expert

- Dan Smith, Invited expert
- Ed van Duizen, University of North Carolina
- Mary Vardigan, ICPSR

1.3.4 DDI Alliance Members

We would like to thank the following member organizations which have supported the DDI Alliance in their development of DDI Lifecycle 3.0 through 3.3:

- Australian Bureau of Statistics (ABS)
- Australian Data Archive (ADA)
- University of Alberta, Canada
- University of California, Berkeley – Computer-Assisted Survey Methods Program and UCDATA, USA
- University of California, California Digital Library, USA
- University of California, San Diego, USA
- Centre for Longitudinal Studies, Institute of Education, University of London (Associate Member)
- Centro De Investigaciones Sociologicas (CIS), Spain
- Colectica (Associate Member)
- CEPS/INSTEAD, Luxembourg
- Cornell University (CISER)
- Danish Data Archive
- Data Archiving and Networked Services (DANS), The Netherlands
- Emory University, USA
- Eurostat
- Finnish Social Science Data Archive
- Food and Agriculture Organization (FAO)
- German Institute for International Educational Research (DIPF)
- German Socio-Economic Panel Study (SOEP)
- GESIS - Leibniz Institute for the Social Sciences
- University of Guelph, Canada
- Harvard University, USA
- Institute for Social and Economic Research (ISER)
- Institute for the Study of Labor (IZA), Germany
- International Association of Social Science Information Service and Technology (IASSIST)
- International Federation of Data Organizations (IFDO)
- Inter-university Consortium for Political and Social Research (ICPSR), USA
- Massachusetts Institute of Technology (MIT), USA
- University of Minnesota, Minnesota Population Center (MPC), USA

- National Opinion Research Center (NORC), USA
- Nesstar LTD., UK
- University of North Carolina, USA
- Norwegian Social Science Data Service (NSD)
- Open Data Foundation, USA (Associate Member)
- Pennsylvania State University, Social Science Research Institute, USA
- Princeton University, USA
- Research Data Centre of the German Federal Employment Agency, Institute for Employment Research (IAB)
- Roper Center, USA
- SPSS Inc., USA
- Stanford University, USA
- Statistics New Zealand
- University of Surrey, UK
- Survey Research Operations, University of Michigan
- Swedish National Data Service (SND)
- Swiss Foundation for Research in Social Sciences (FORS)
- Swiss Data Archive for the Social Sciences (SIDOS)
- University of Toronto Libraries
- University of Toronto Scholars Portal
- United Kingdom Data Archive
- United States Bureau of Labor Statistics (Associate Member)
- United States Census Bureau
- University of Washington, Center for Studies in Demography & Ecology (CSDE)
- Washington State University, USA
- University of Wisconsin, USA
- World Bank, Development Data Group (DECDG)
- Yale University, USA

2.1 Using the DDI Model

The DDI model is a high level view of the DDI-Lifecycle standard, which provides information on the relationship between the objects in the model and visualisations.

The source code for the DDI Model is at <https://github.com/ddialliance/ddimodel> . An HTML view is available at <https://ddialliance.github.io/ddimodel-web/DDI-L-3.3/>

N.B. The model does not contain all the content elements, please consult either the XML schema (<https://ddialliance.org/Specification/DDI-Lifecycle/3.3/>) or the HTML documentation at <https://ddialliance.org/Specification/DDI-Lifecycle/3.3/XMLSchema/FieldLevelDocumentation/>

2.1.1 Prototype Serializations of the Model

The following serializations of the model are available as *PROTOTYPES*

- XML Schema
- OWL 2 (RDF Schema)
- OMG's UML Normative XMI 2.4.2
- OMG's UML XMI 2.5 with Diagrams and Diagram Exchange
- Sphinx HTML documentation and visualizations
- JSON Schema
- C# class library with JSON and XML serialization
- SVG and dot visualizations
- GraphQL schema language

If you have comments on these please contact us.

2.2 Using the HTML Field Level Documentation

Field Level documentation in HTML format, produced directly from the XML schemas is available in the downloaded bundle and online at <https://ddialliance.org/Specification/DDI-Lifecycle/3.3/XMLSchema>

It provides a brief description of the purpose and content of the object. Documentation found in the complex Type description will provide more detail than the element documentation. Within a complex type, the additional documentation of sub-elements will focus on its purpose within the context of the complex type.

The HTML documentation is generated from the content of the DDI schema set. The upper left frame contains primary navigation and opens on the Overview which lists the Namespaces and XML Schemas that comprise DDI Lifecycle. The lower left frame lists All Components, Elements, Complex Elements, Simple Types, Element Groups, Attributes, and Attribute Groups).

It seems like a lot but over half the XML Schemas, all the Element Groups, Attributes, and Attribute Groups are there to support the use of XHTML or Dublin Core. The lower left frame can be focused on a single XML Schema content by clicking on the name of that XML Schema in the upper left Frame.

Field level documentation provides information on what the field contains and if it is a complex element how the elements and attributes within it are used. If you need to know what a specific element contains you can find it in the alphabetical element list in the lower left frame and click on it, for example, MetadataQuality.

Namespaces (22)

- [ddi:archive:3_2](#)
- [ddi:comparative:3_2](#)
- [ddi:conceptualcomponent:3_2](#)
- [ddi:datacollection:3_2](#)
- [ddi:dataset:3_2](#)
- [ddi:ddiprofile:3_2](#)
- [ddi:group:3_2](#)
- [ddi:instance:3_2](#)
- [ddi:logicalproduct:3_2](#)
- [ddi:physicaldatapduct:3_2](#)
- [ddi:physicaldatapduct ncube inline](#)
- [ddi:physicaldatapduct ncube norm](#)
- [ddi:physicaldatapduct ncube tabul](#)

element <MetadataQuality> (global)

Namespace: [ddi:reusable:3_2](#)
 Type: [MetadataQualityType](#)
 Content: complex, 4 elements
 Defined: globally in [reusable.xsd](#); see [XML source](#)
 Used: at 1 [location](#)

XML Representation Summary

```
<MetadataQuality>
  Content: TypeOfMetadataQuality, MeasurePurpose?, MeasureValue?, Description?
</MetadataQuality>
```

Content model elements (4):

[Description](#), [MeasurePurpose](#), [MeasureValue](#), [TypeOfMetadataQuality](#)

Included in content model of elements (39):

[Archive](#), [BaseLogicalProduct](#), [CategoryScheme](#), [CodeList](#), [CodeListScheme](#), [Comparison](#), [ConceptScheme](#), [ConceptualComponent](#), [ConceptualVariableScheme](#), [ControlConstructScheme](#), [DDIInstance](#), [DDIProfile](#), [DataCollection](#), [GeographicLocationScheme](#), [GeographicStructureScheme](#), [Group](#), [InstrumentScheme](#), [InterviewerInstructionScheme](#), [LocalGroupContent](#), [LocalHoldingPackage](#), [LocalResourcePackageContent](#), [LocalStudyUnitContent](#), [LogicalProduct](#), [ManagedRepresentationScheme](#), [NCubeScheme](#), [OrganizationScheme](#), [PhysicalDataProduct](#), [PhysicalInstance](#), [PhysicalStructureScheme](#), [ProcessingEventScheme](#), [ProcessingInstructionScheme](#), [QualityStatementScheme](#), [QuestionScheme](#), [RecordLayoutScheme](#), [RepresentedVariableScheme](#), [ResourcePackage](#), [StudyUnit](#), [UniverseScheme](#), [VariableScheme](#)

Known Usage Locations

- Within global complexTypes (1):
[AbstractMaintainableType](#) [ref]

Annotation

An assessment of the quality of the metadata within the Maintainable object, e.g. the quality of the transcription, completeness, editing status, etc.

XML Source (w/o annotations (1); see within schema source)

```
<xs:element name="MetadataQuality" type="MetadataQualityType"/>
```

XML schema documentation generated with [DocFlex/XML RE](#) 1.9.0 using [DocFlex/XML XSDDoc](#) 2.8.0 template set

The right frame now provides information on the element MetadataQuality including what namespace it is in, the type, contents, where it is defined, and where it is used.

This is followed by the XML Representation Summary which is a listing of each element followed by a symbol to indicate its cardinality.

The convention used is:

Element	Symbol	Description
ElementA	[]	required/not repeatable
ElementB	[+]	required/repeatable
ElementC	[?]	optional/not repeatable
ElementD	[*]	optional/repeatable

The elements within the content model are listed in alphabetical order followed by the list of elements where MetadataQuality is available, known usage locations, documentation (annotation), and the XML Source.

All of these contain clickable links for additional details. For the full description of the structure click on the “Type:” in the top section. This will provide content and documentation details for the structure. To understand the use of the object in a specific location click on the name of the object that includes it.

The screenshot displays a web interface with a left sidebar containing a list of namespaces and a main content area. The main content area is divided into two sections: "XML Source" and "Content Element Detail".

XML Source (w/o annotations (5); see within schema source)

```
<xs:complexType name="MetadataQualityType">
  <xs:sequence>
    <xs:element ref="TypeOfMetadataQuality"/>
    <xs:element minOccurs="0" ref="MeasurePurpose"/>
    <xs:element minOccurs="0" ref="MeasureValue"/>
    <xs:element minOccurs="0" ref="Description"/>
  </xs:sequence>
</xs:complexType>
```

Content Element Detail (all declarations; defined within this component only; 4/4)

- Description**

Type: [StructuredStringType](#), complex content

A textual description of the quality of this set of metadata which expands on or is provided in lieu of other objects within MetadataQuality. Supports multiple languages and the use of structured content.

XML Source (w/o annotations (1); see within schema source)

```
<xs:element minOccurs="0" ref="Description"/>
```
- MeasurePurpose**

Type: [StructuredStringType](#), complex content

The purpose of the type of metadata quality and its value. Supports multiple languages and the use of structured content.

XML Source (w/o annotations (1); see within schema source)

```
<xs:element minOccurs="0" ref="MeasurePurpose"/>
```
- MeasureValue**

Type: [CodeValueType](#), simple content

A value representing the measurement of this set of metadata within the context of the TypeOfMetadataQuality indicated. Supports the use of an external controlled vocabulary.

Simple Content

```
xs:string
```

XML Source (w/o annotations (1); see within schema source)

```
<xs:element minOccurs="0" ref="MeasureValue"/>
```
- TypeOfMetadataQuality**

Type: [CodeValueType](#), simple content

A brief statement of the metadata quality being measured. Supports the use of an external controlled vocabulary. Use of a controlled vocabulary is strongly recommended.

Simple Content

```
xs:string
```

XML Source (w/o annotations (1); see within schema source)

```
<xs:element ref="TypeOfMetadataQuality"/>
```

Now in addition to the information on first screen you have more extensive documentation for the complex element, a more detailed XML Source showing order and cardinality as XML schema, and content element detail including type information and documentation of what each element is intended to contain.

If you are starting from scratch and just want to explore, start at the element `DDIInstance`, which is the top level publishing structure in DDI and work your way down through the structures of the primary document types.

The most commonly used DDI lifecycle document is `StudyUnit` and it corresponds most closely to the content coverage of DDI Codebook (<https://ddialliance.org/Specification/DDI-Codebook/2.5/>).

2.3 Change Log

The download bundle contains two files relating to the Change Log.

`ChangeNotes.docx` contains a summary of Change Notes for Conversion of DDI-L 3.2 Instances to DDI-L 3.3.

`ChangeLog.xlsx` contains a listing of all Additions, Removals, and Changes made between DDI-Lifecycle version 3.2 and DDI-Lifecycle version 3.3

- The CHANGE Note column on the sheet “Changes” corresponds to the change note above
- Objects noted in the sheets “Additions” and “Removals” without a parent listed are element declarations
- New `ComplexTypes` found in the “Additions” list do not provide `complexContent` details, those are found in the schemas and documentation

For a complete listing of issues reviewed in the development of DDI-Lifecycle version 3.3 see: <https://ddi-alliance.atlassian.net/issues/?filter=11223>

2.3.1 Summary of Additions

The main additions are:

- `MeasurementItem` is a new structure modelled on `QuestionItem` to support Measurement
- Survey Development (new structures to support expanded functionality)
- Statistical Classification (new structures to support GSIM)
- `UnitType` (new element to support alignment with ISO11179 and GSIM)
- New constructs - `Split` and `SplitJoin` to support concurrent processing; `DevelopmentStep`, `SampleStep`, `SamplingStage` to support Survey Development and `MeasurementConstruct` for `MeasurementItems`

2.3.2 Summary of Changes

`CodeValueType` and `InternationalCodeValueType` have had all attribute names changed from `codeListXxx` to `controlledVocabularyXxx`. This aligns the naming with the Controlled Vocabularies published by the DDI and prevents name conflicts with the element `CodeList` in the DDI schemas

`ComponentParts` changed from `type="ComponentPartsType"` to `type="LocationValueBundleType"`.

`ControlConstruct` reference no longer supports the use of binding

`DefiningConceptReference` moved from `conceptualcomponent.xsd` to `reusable.xsd`

The documentation is provided in a number of different formats for different audiences.

- The DDI Model, Field Level and this Technical Guide documentation are primarily aimed at developers or advanced users of the standard.
- The User Guide (in preparation) is aimed at all other users and provides a higher level overview of the use of the standard.

- The Change Log is aimed at those migrating content or systems from previous versions of DDI Lifecycle.

Relationship to Other Standards

In constructing DDI special care was taken to review related standards as well as previous versions of DDI in order to provide clear mapping to the contents of outside standards or to incorporate content where appropriate. Over 25 standards were evaluated. DDI-L currently has mapped relationships to the following standards

3.1 DDI Codebook (DDI-C) and earlier versions

After conceptualizing the lifecycle model and the design rules for reuse, DDI-C content was distributed to the schemas comprising DDI-L. Specific mapping of objects from DDI-C to DDI-L brought to light a number of specific issues which were then addressed during DDI-L revisions. While specific objects may not always have a specific 1:1 correlation in 3.0, the content of all 2.1 objects has been captured, often in greater detail or a more consistent manner than in earlier DDI versions. During the development of DDI 3.2 changes were made in DDI-C to incorporate more content from the Generic Statistical Business Process Model (GSBPM) and to add objects that would ease the translation of DDI-C into DD-L. These objects were also added to DDI-L if not already present.

3.2 Dublin Core and MARC

All citations in DDI-L provide the option of entering a supplemental citation in native qualified Dublin Core (DC-Terms). In addition, the contents of both qualified Dublin Core and the more extensive MARC record can be mapped to objects in DDI-L. DDI-L has divided the contents of these records to a number of complex element groups within DDI to facilitate reuse of specific sub-structures. The major divisions include:

- *Citation* – This structure is used for both DDI content citations and citations for external materials.
- *Coverage* – Temporal, Topical, and Spatial coverage map to content coverage dates, subject and keyword topics, and geographic coverage elements. They are held separately in DDI-L in order to allow coverage constraint for modules within a single StudyUnit or Group.
- *Location Specific Information* – Some information such as acquisition date, call number, local identifiers, etc. are related to a specific holding and are therefore located in the ArchiveSpecific section of the ArchiveModule. This facilitates packaging for transfer and incorporation into a different archive.

3.3 GSIM (Generic Statistical Information Model)

GSIM provides a standardized set of information objects that flow through the process model in the creation of official statistics as represented by the Generic Statistical Business Process Model (GSBPM). GSBPM has been of interest to DDI since in conception. The DDI Generic Longitudinal Business Process Model (GLBPM) is modeled on the GSBPM which itself was informed by the DDI Lifecycle Model. DDI has worked with the UNECE in the development of GSIM to ensure that these two standards are compatible. In general, GSIM is a conceptual model whereas DDI is an implementation model. There is a shared interest in ensuring that DDI-L can be used as a means of implementing the GSIM conceptual model.

The primary areas for close mapping to the GSIM structure lies in:

- areas that relate to their reflection of the ISO/IEC 11179 Data Element Classification Structure. The terminology for the objects as well as the documentation for the objects reflects the GSIM model. - mapping to the GSIM Statistical Classification Model (<https://statswiki.unece.org/display/gsim/Statistical+Classification+Model>). DDi-L 3.2 supports mapping to the GSIM 1.1, The Copenhagen Mapping (<https://statswiki.unece.org/display/gsim/CopenhagenMapping>) and DDI-L 3.3 supports the full model.

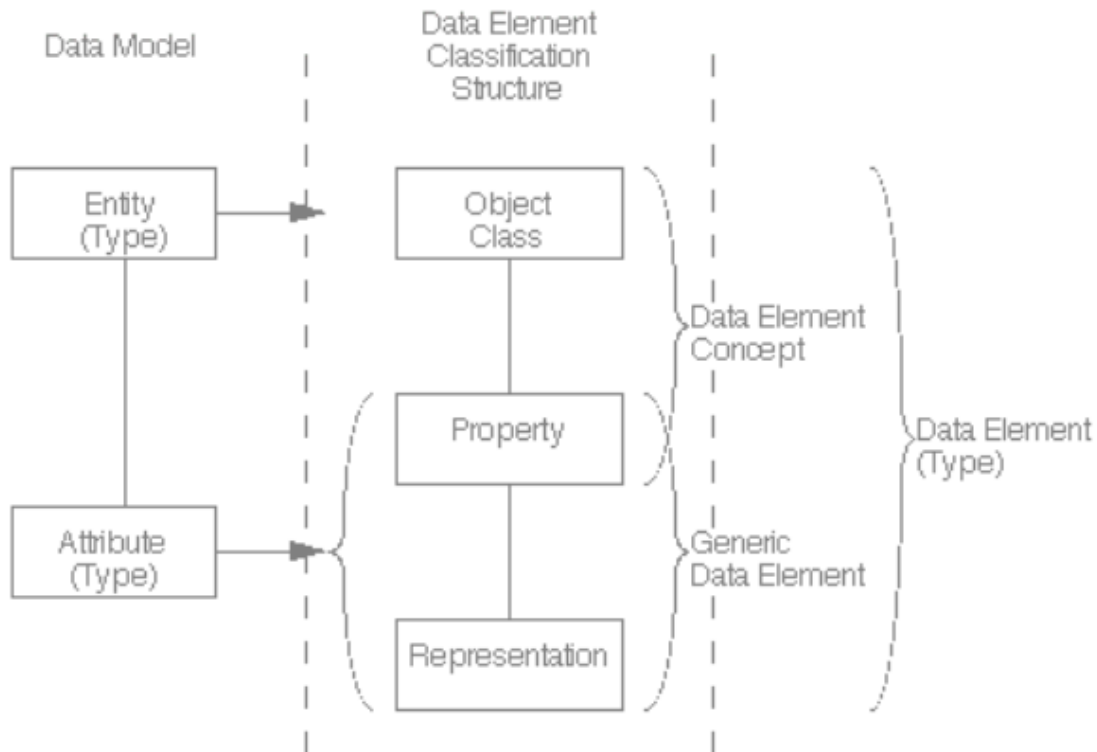
3.4 ISO/IEC 11179

DDI-L reflects ISO/IEC 11179 structure in several respects. First, it maps the core structures Concept, Universe, ConceptualVariable, and RepresentedVariable to the ISO/IEC 11179 Data Element Classification Structure. The structure presented in DDI 3.2 aligns with the representation of this ISO standard through the GSIM structure. (See GSIM discussion within this section).

Secondly, DDI-L has adopted the combination of the Agency, ID, and Version as the full unique identification of an object. This is reflected in the identification model and content of the DDI URN. Finally, DDI-L has incorporated the ISO/IEC 11179-5 structure of providing a Name, Label, and Description for all primary objects (maintainable and versionable) that are not considered publication structures. Publication structures have complete citation information plus an abstract. The objects with this common descriptive set are those that are commonly managed with registries over time.

This standard describes the structure and content of a data element as the basic building block of information. DDI -L is particularly concerned with providing the information needed to populate an ISO/IEC 11179 data element and support a registry structure. The following diagram provides the Data Element Structure.

Figure 1. ISO11179 Data Element Structure



International Standard ISO/IEC 11179-1: Information technology – Specification and standardization of data elements – Part 1: Framework for the specification and standardization of data elements Technologies de l’informatin – Spécification et normalisation des éléments de données – Partie 1: Cadre pour la spécification et la normalisation des éléments de données. First edition 1999-12-01 (p26) https://www.oasis-open.org/committees/download.php/6233/c002349_ISO_IEC_11179-1_1999%28E%29.pdf

In DDI terminology, the Object Class is defined by the universe, its Property is the concept, and the Representation is the Representation content used by the Variable that measures it.

ConceptualComponent contains Universe and Concept definitions while Representation is described within the Variable. In most DDI instances it is the Variable that ties the three sections of this definition together. Note that if the Variable does not include a concept reference the instance is not compliant with ISO/IEC 11179.

DDI 3.2 has added the ability to create the more abstract (or reusable) descriptions of an ISO/IEC 11179 Data Element and Data Element Concept. These have been structured to align with the GSIM description (see GSIM in this section). The 3.1 element DataElementConcept has been replaced by a ConceptualVariable located within ConceptualComponent. This object links a Concept with a Universe creating the equivalent of the ISO/IEC 11179 Data Element Concept. A RepresentedVariable located in Logical Product, adds the expression of the representation to the concept and universe. This is the reusable set of information for a Variable which is the implementation of a RepresentedVariable within a specific usage. The underlying RepresentedVariable may be referenced from the Variable.

3.5 ISO 19115 - Geography

The construction of geographic objects within DDI was done using the US FGDC which is ISO 19115 compliant. The content of the following objects map to these geographic standards:

In SpatialCoverage:

- Bounding Box
- Spatial Object (SpatialPrimitive)
- TopLevelReference
- LowestLevelReference
- BoundingPolygon
- Point

In GeographicResponseDomain:

- Datum
- CoordinateSystem
- CoordinateZone
- ErrorCorrection
- Offset
- GeoreferencedObject
- CoordinatePairs
- SpatialPrimitive

The use of these fields provides search information for coordinate based search systems and detailed information needed by the geographer to determine the usefulness of a specific data set for geographic analysis.

3.6 Statistical Data and Metadata eXchange

Careful comparison was made between DDI-C nCubes and SDMX structures. In evaluating the structure and application of these two specifications it was concluded that while basic SDMX structures could be described as nCubes, not all nCubes could be described in SDMX. SDMX deals with well structured, well defined data which contains a time dimension. Not all legacy data contains well structured and well defined aggregate data and nCubes provide support for these structures. SDMX contained a more flexible approach to attaching information to regions of cells within the matrix and used a standard attribute structure to define all aspects of the matrix from the label to the cell content.

SDMX requires the data cell content to be within the structure while DDI nCubes allow for the separation of metadata description and data content. In DDI-L the NCube structure retains the specified objects for Label, Universe, Dimensions, and Measure but adds the Attribute object and the ability to define regions of the matrix and to attach attributes to these regions. DDI-L NCubes were designed to map to both earlier nCube structures and to SDMX providing support for using SDMX as a data transfer or storage structure.

3.7 Metadata Encoding and Transmission Standard (METS)

METS is a standard developed as an initiative of the Digital Library Federation and provides a consistent outer wrapper for digital objects described by a variety of METS profiles. The METS structure was consulted in developing the structure for the Collection and Item objects in Archive and the intent is to write and register a METS Profile for DDI.

3.8 PREMIS

PREMIS is a common implementation of Open Archive Information System (OAIS). There is a preliminary mapping of DDI-L to PREMIS objects. The focus of PREMIS is preservation and there are several elements where DDI-L does not provide controlled content. However, with the ability to publish controlled vocabularies external to the DDI specification, we should be able to address all but a few of the PREMIS objects. Further alignment with OAIS requirements as expressed in PREMIS and other preservation will take place as DDI-L expands into process models, provenance, and archive management content.

3.9 XHTML Tags Support by DDI

The following table provides the tag names, descriptions, and legal content for all XHTML tags supported by DDI. A list of unsupported tags follows this list. Most tags support several types of core attributes covering classification, style, internationalization, and events. Refer to W3C for detailed information on attribute usage.

- Note that these elements exist in the xhtml namespace and must be prefixed with that namespace, e.g. <xhtml:p>
- Additional information about XHTML tags can be found at <http://www.w3schools.com/tags/default.asp>

3.9.1 Block Elements

El- e- ment	Description	Support
ad- dress	Contact information for the document owner or author blockquote block quotation, a long quotation set off in a block of text	May contain Inline Elements or text
block- quote	Block quotation, a long quotation set off in a block of text	Contains Block Elements
div	Division - generic way to divide group contents	May contain Block Elements, Inline Elements or text
dl	Definition list	Must contain at least one dt or dd element
h1	Heading level 1	May contain Inline Elements or text
h2	Heading level 2	May contain Inline Elements or text
h3	Heading level 3	May contain Inline Elements or text
h4	Heading level 4	May contain Inline Elements or text
h5	Heading level 5	May contain Inline Elements or text
h6	Heading level 6	May contain Inline Elements or text
hr	Horizontal line - content separator	No content expressed as <xhtml:hr/>
ol	Ordered list	Must contain at least one li
p	Paragraph	May contain Inline Elements or text
pre	Preformatted text	May contain Inline Elements (except img, object, big, small, sub, and sub, at any depth) or text
ta- ble	Table	Contains: caption may appear as the first item and only once; optional col or colgroup; one or more of the following tags in order: thead (0..1 and only if tbody is used), tfoot (0..1 only if tbody is used) , tbody (1..n) OR tr (1..n)
ul	Unordered list	Must contain one or more li

3.9.2 Inline Elements

Element	Description	Support
a	Anchor which defines the hypertext link using an id attribute	May contain Inline Elements (except a at any depth) or text
abbr	Abbreviation	May contain Inline Elements or text
acronym	Acronym	May contain Inline Elements or text
b	Bold	May contain Inline Elements or text
big	Big text	May contain Inline Elements or text
br	Line break	No content expressed as <xhtml:hr/>
cite	Citation	May contain Inline Elements or text
code	Computer code text	May contain Inline Elements or text
dfn	Definition term	May contain Inline Elements or text
em	Emphasized text	May contain Inline Elements or text
i	Italics	May contain Inline Elements or text
kbd	Keyboard text	May contain Inline Elements or text
q	Quotation, short in line	May contain Inline Elements or text
samp	Sample computer code	May contain Inline Elements or text
small	Small text	May contain Inline Elements or text
span	Section in a document	May contain Inline Elements or text
strong	Strong text	May contain Inline Elements or text
sub	Subscripted text	May contain Inline Elements or text
sup	Superscripted text	May contain Inline Elements or text
tt	Teletype text or monospaced text style	May contain Inline Elements or text
var	Variable part of text - indicates instance of a computer code variable or program argument	May contain Inline Elements or text

3.9.3 List Elements

Element	Description	Support
dd	List definition description	May contain Block Elements, Inline Elements or text
dt	Definition (list) term	May contain Inline Elements or text
li	List item - ordered or unordered	May contain Block Elements, Inline Elements or text

3.9.4 Table Elements

Element	Description	Support
caption	Table caption	May contain Inline Elements or text
col	Attribute values for one or more columns	No content - provides attributes describing alignment, width, formatting of cells
col-group	group of columns in a table for formatting	May contain col
tbody	Body content in a table	May contain tr
td	Cell in a table	May contain Block Elements, Inline Elements or text
tfoot	Footer content in a table	May contain tr
th	Header cell in a table	May contain Block Elements, Inline Elements or text
thead	Header content in a table	May contain tr
tr	Row in a table	Must contain one or more of td OR th

3.9.5 Unsupported Elements

Element	Description
del	Delete content
fieldset	Form control group
form	data entry form
noscript	alternate content for client-side script
ins	inserted content
script	client-side script
bdo	bidirectional text override

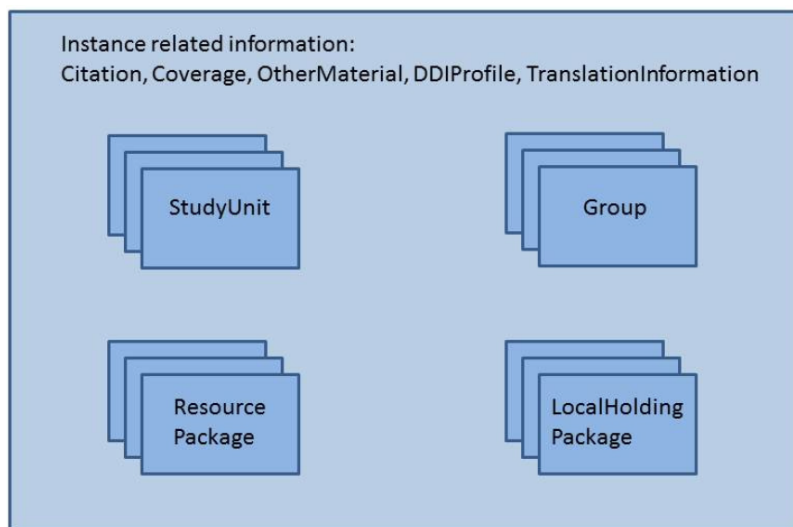
4.1 Exchange structures

DDI Lifecycle instances are published and exchanged with one of two external wrappers, DDIInstance or FragmentInstance.

The DDIInstance provides a consistent top-level publication wrapper and in addition to some basic information about itself serves as the publication wrapper for four primary documenttypes: StudyUnit, Group, ResourcePackage, and LocalHoldingPackage.

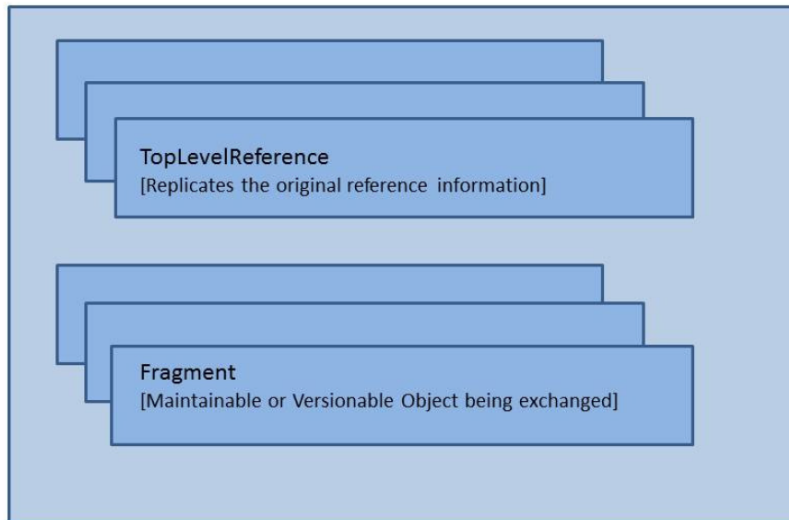
The FragmentInstance is a uniform package used to transfer maintainable or versionable objects plus any associated Notes or OtherMaterial. These would be packets sent in response to system calls (external references, query calls, etc.).

DDI Instance:



The Citation, Coverage, OtherMaterial, DDIProfile, and TranslationInformation pertain to the DDI Instance as a whole. Note that the DDIInstance may be viewed as a temporary wrapper for publishing or transporting any of the major publication structures within DDI.

Fragment Instance:



The FragmentInstance is a wrapper for transporting a response to a request for a specific set of information. Although Maintainable, Versionable, and Identifiable objects may be referenced, the FragmentInstance can only transport a Maintainable or Versionable object.

If an Identifiable is the referenced object, its parent Versionable (or Maintainable) will be supplied. A FragmentInstance may contain any number of Versionable or Maintainable objects. The objects that are the specific responses to the request are listed in the TopLevelReference. For example, a single CodeList (Versionable object) may be requested and the FragmentInstance sent in response may contain the CodeList, the containing CodeListScheme, the referenced Categories, and the containing CategoryScheme. The requested CodeList would be noted in the TopLevelReference and the content of the returned objects would make up the Fragments.

4.2 Maintainable structures

DDI has two types of maintainable structures; Modules and Schemes.

4.2.1 Modules

Modules are conceptually related groups of metadata related to stages within a lifecycle.

Scheme Prefix	Module Name	Description
a	Archive	Contains information concerning the organization providing archival functions, the position of the related metadata and data within the organization, and preservation/provenance information about the metadata and data including LifeCycleEvents.
l	CodeList	A special form of maintainable that allows a single codelist to be maintained outside of a CodeListScheme.
cm	Comparison	Contains information on comparison of similar metadata objects using mapping between a source and target object.
c	ConceptualComponent	Contains descriptions of Concepts, Universes, DataElements, ographicStructures,and GeographicLocations
d	DataCollection	Contains information on data collection, capture, methodology, and processing of data.
pr	DDIProfile	A specialized meta-model structure that specifies the elements in DDI used by an application, organization, or project and how they are used.
g	Group	A publication module that pulls together multiple StudyUnits with either an intended relationship (i.e., longitudinal study) or an ad-hoc relationship (i.e., studies on aging used within an instructional package).
g	LocalHoldingPackage	A publication structure that allows an archive or library to bind locally produced metadata to deposited metadata without altering the original metadata set
g	LocalGroupContent	Locally produced Group content within a LocalHoldingPackage.
g	LocalResourcePackageContent	Locally produced ResourcePackage content within a LocalHoldingPackage.
g	LocalStudyUnitContent	Locally produced StudyUnit content within a LocalHoldingPackage.
l	LogicalProduct	Contains information on the intellectual structure of the data (i.e., Variables, NCubes), including CategorySchemes, CodeListSchemes, and information on how the data are organized into LogicalRecords and the Relationship of those records to each other.
p	PhysicalDataProduct	Contains information on the physical structure of the data including file structures and RecordLayout structures. Links to the LogicalRecord.
pi	PhysicalInstance	A metadata record for a datafile providing identification information for the data file, a link to the RecordLayouts found in the data file, and summary statistics for the data file.
g	ReusableResourcePackage	A publication structure that allows any maintainable object that is not a publication package to be published as a reusable resource outside of the context of a specific study.
s	StudyUnit	A publication structure for a specific study. Structures identification information, full biblio-

4.2.2 Schemes

Schemes are maintainable lists of reusable objects of specified generic types (i.e., questions) and include a means of expressing groups of these objects for administrative purposes.

Schema Prefix	Module Name	Description
l	CategoryScheme	Categories provide enumerated representations for concepts and are used by questions, code lists, and variables
l	CodeListScheme	Code lists link a specific value with a category and are used by questions and variables
c	ConceptScheme	Concepts express ideas associated with objects and means of representing the concept
c	ConceptualVariableScheme	Links a concept with a specific object
d	ControlConstructScheme	Control constructs represent types of constructs used to represent a process or questionnaire flow (Sequence, Statement, IfThenElse, question construct, Loop, etc)
c	GeographicLocationScheme	Locations are specified by type of structure, name, codification, and definition of physical location
c	GeographicStructureScheme	Define the structure of geographic hierarchies used to describe geographic area types (States, Cities, Tracts, etc.)
d	InstrumentScheme	Instruments include any physical means of capturing data
d	InterviewerInstructionScheme	Instructions related to the interpretation or process of capturing data (Interviewer may be an individual or agent, such as a computer, or the interviewee in the case of a self administered survey).
l	NCubeScheme	NCubes are dimensional data where there is a relationship between the individual cells of data (i.e. statistical table, correlation table, etc.)
r	ManagedRepresentationScheme	Reusable representations of numeric, textual, datetime, scale or missing values types.
a	OrganizationScheme	Descriptions of organizations and individuals and their relationships.
p	PhysicalStructureScheme	Describes the overall physical structure of data records (i.e., storage formats, record parts, default values and types)
d	ProcessingEventScheme	Processing events covering cleaning operations, control operations, data appraisal, weighting, and the applied use of processing instructions.
d	ProcessingInstructionScheme	General and Generation Instructions used in processing events, data capture, and generation of variables.
r	QualityStatementScheme	Statements providing information on standards and/or actions taken to ensure of data, metadata, and processes.
d	QuestionScheme	Contains Question Items, Question Grids, and Question Blocks used by Control Constructs in creating questionnaires.
p	RecordLayoutScheme	Record Layouts provide the specific link between the description of a variable or NCube cell with the physical storage location in a data file type.
l	RepresentedVariableScheme	The core reusable content of a variable providing the concept, object (universe), and representation description.
c	UniverseScheme	A hierarchical representation of the universes (populations) represented within a data collection
l	VariableScheme	A list of the variables, their structure, representation, source information, and expression.

4.3 Scheme Groups

All schemes in DDI have a scheme group structure that allows users to identify sets of scheme objects and scheme groups that have specific relationships to each other. These may be related by subject, concept, universe, usage, or any relationship defined by the user. Because these groups are created by referencing the objects and groups they contain a single object can move into and out of multiple groupings over time.

These groups are administrative in nature and cannot be used to include a set of objects in another scheme or usage. For example, a QuestionGroup cannot be referenced by a QuestionConstruct as a set of objects.

4.4 Organizing Publication Package Contents

The major publication packages (StudyUnit, Group, ResourcePackage, and LocalHoldingPackage) organize their contents in a set order or sequence. Although all objects may not be available in each publication structure, the order of all the included non-maintainable objects remains the same. The maintainable objects in Group and StudyUnit follow the same order.

In ResourcePackage all maintainable modules fall before the DDI Schemes within the content sequence.

Note that within the list of maintainable Modules and maintainable DDI Schemes, the ordering is consistent with Group and StudyUnit.

The table below lists the content and order of the three primary publication packages. LocalHoldingPackage is a specialized structure that bundles together a publication package from an external agency (StudyUnit, Group, or ResourcePackage) with similarly structure locally added materials.

Further information on LocalHoldingPackage structure and usage is found in 3.10 DDI and OAIS – Archives and provenance. All maintainable objects published within StudyUnit and Group and all non-DDI scheme maintainable objects in ResourcePackage may be included in-line or by reference. DDI Schemes that are included in a ResourcePackage as separate items (i.e., not included within another Module) must be in-line.

ResourcePackage is intended as a means of publishing metadata intended for reuse outside of a single study therefore it is the primary publishing structure for DDI Schemes with content that is used by multiple studies.

How an organization decides to structure its publication packages depends on how they intend to organize, manage, and reuse their metadata. Some organizations publish all their potentially reusable metadata as ResourcePackages with in-line content. StudyUnits and Groups are composed as a set of object specific metadata (Citation through Embargo content) followed by a stack of references.

Others prefer to manage all metadata that is not specifically reused in-line within the context of the StudyUnit or Group. There are advantages and disadvantages to both approaches depending upon User Story in question.

Both approaches will be discussed within the context of each User Story [**3 User Stories – Applying DDI – TBD**]. If an organization uses one extreme or the other for all or a class of metadata, this should be noted within the organization's DDIPProfile. For example, noting that the in-line option is not used for specific objects where there is a choice.

4.4.1 Sequence of ResourcePackage, Group, and StudyUnit

ResourcePackage	Group	StudyUnit
Citation	Citation	Citation
Abstract	Abstract	Abstract
AuthorizationSource	AuthorizationSource	AuthorizationSource
UniverseReference	UniverseReference	UniverseReference
SeriesStatement	SeriesStatement	SeriesStatement
QualityStatementReference	QualityStatementReference	QualityStatementScheme (inline or reference)
	ExPostEvaluation	ExPostEvaluation
FundingInformation	FundingInformation	FundingInformation
ProjectBudget	ProjectBudget	StudyBudget
Purpose	Purpose	Purpose
Coverage	Coverage	Coverage
	AnalysisUnit	AnalysisUnit
	KindOfData	KindOfData
	OtherMaterial	OtherMaterial
	RequiredResourcePackages	RequiredResourcePackages
Embargo	Embargo	Embargo

4.4.2 Maintainable Modules, Choice of Inline or by Reference

ResourcePackage	Group	StudyUnit
ConceptualComponent	GeographicLocationCode Delineation-Scheme	GeographicLocationCode Delineation-Scheme
DataCollection	GeographicStructureCode Delineation-Scheme	GeographicStructureCode Delineation-Scheme
LogicalProduct	TextDelineationScheme	TextDelineationScheme
PhysicalDataProduct	DateTimeDelineationScheme	DateTimeDelineationScheme
PhysicalInstance	NumericDelineationScheme	NumericDelineationScheme
Archive	CodeDelineationScheme	CodeDelineationScheme
DDIProfile	CategoryDelineationScheme	CategoryDelineationScheme
Comparison	GeographicDelineationScheme	GeographicDelineationScheme
	NominalDelineationScheme	NominalDelineationScheme
	ScaleDelineationScheme	ScaleDelineationScheme
	LocationDelineationScheme	LocationDelineationScheme
	RankingDelineationScheme	RankingDelineationScheme
	DistributionDelineationScheme	DistributionDelineationScheme
	MissingValuesDelineationScheme	MissingValuesDelineationScheme
	ConceptualComponent	ConceptualComponent
	DataCollection	DataCollection
	LogicalProduct	LogicalProduct
	PhysicalDataProduct	PhysicalDataProduct
	PhysicalInstance	PhysicalInstance
	Archive	Archive
	DDIProfile	DDIProfile
	Comparison	
	StudyUnit	
	SubGroup	

4.4.3 Maintainable DDI Schemes, Inline Only

ResourcePackage	Group	StudyUnit
OrganizationScheme		
ConceptScheme		
UniverseScheme		
DataElementScheme		
GeographicStructureScheme		
GeographicLocationScheme		
InterviewerInstructionScheme		
ControlConstructScheme		
QuestionScheme		
CategoryScheme		
CodeListScheme		
NCubeScheme		
VariableScheme		
PhysicalStructureScheme		
RecordLayoutScheme		
QualityStatementScheme		
InstrumentScheme		
ProcessingEventSchemeE		
ProcessingInstructionScheme		
GeographicLocationCode DelineationScheme		
GeographicStructureCode DelineationScheme		
TextDelineationScheme		
DateTimeDelineationScheme		
NumericDelineationScheme		
CodeDelineationScheme		
CategoryDelineationScheme		
GeographicDelineationScheme		
NominalDelineationScheme		
ScaleDelineationScheme		
LocationDelineationScheme		
RankingDelineationScheme		
DistributionDelineationScheme		
MissingValues DelineationScheme		

4.5 Managing Metadata Over Time

Organizing metadata for the purposes of long-term management may be different than how it is organized for document presentation. DDI 3.2 has provided additional features, such as the ability to include Maintainable objects and most Versionable objects either in-line or by reference, that facilitate the management of metadata outside of specific publication packages. Consider how metadata may be used in the future to facilitate the following activities:

- Reuse of metadata such as questions or variables within a series
- Common metadata that can support comparison between studies within a larger collection

(Geographic Structures, Geographic Locations, Concepts, Universe hierarchies, Organizations and Individuals, etc.) - Metadata that will be maintained and versioned over time (Categories, Concepts, Geographic Locations, etc.)

Separating these schemes of metadata from their applied use within a specific study facilitates reuse and comparison. For example, a study that uses a subset of concepts by reference retains information regarding the relationship of those

concepts to a broader conceptual model. In organizing metadata for long-term management and broad reuse, consider how the metadata will be reused, in particular making use of nested schemes to facilitate the reuse of common subsets.

4.6 Versioning

DDI has a basic rule regarding versioning. In general, once metadata is published (i.e. flagged as being stable for referencing purposes) any change to the content should result in a version change to the Versionable object containing the change. Note that as Versionable objects are contained by Maintainable objects and that Maintainable object may be contained in another Maintainable object, a single change will generally trigger Versioning up the containing tree of the metadata. The purpose of versioning is to ensure that someone referencing a specific version of an object will always get back the same information.

Versioning rules and Version Number structures differ between different organizations and between different projects or products of the same organization. DDI does not dictate this structure EXCEPT to specify that it must be expressed as one or more integers separated by a “.” (dot). The DDI Lifecycle specification uses a three part structure of a Major.Minor.Sub-Minor version number (you may choose to utilise this, or not). T

he Organization should describe its versioning system or systems so that it is clear to the user when and how versioning occurs. Versioning is “required” once a Maintainable object is flagged isPublished=”true”. During production processes, tracking version changes may be managed by other means such as Version Date or an external subversion system. Changes in the version date do not affect references to the object yet allow for object level tracking of changes during development periods.

These should describe the decision rules regarding when an change results in a new version of an object or a new object, level of change (major, minor, sub-minor) and how those are expressed in the version number. These versioning rules should be expressed within the description of the Maintenance organization, project, or individual in the Organization Scheme. This allows users to understand any underlying logic in the versioning system used by the metadata.

Some organizations are stricter in their versioning rules than others. For example, a typographical correction within a Description text which is considered to have no impact on the intellectual content may trigger a Minor or Sub-minor version change in one system while only result in Version Date change in another.

Because the impact of a change cannot be easily predicted (it is dependent upon the use of the metadata) the important thing is to capture that a change was made and to provide the end user with a clear set of versioning rules that supports their ability to evaluate the impact of the change for their particular use. Completing the field VersionRationale is also an aid to a future user in determining whether the change will affect their research results.

In addition, some metadata is considered local in nature, specific to interaction with an identified system. This metadata is considered to be Administrative in nature and is viewed by DDI as a set of metadata that does not alter the intellection content (Payload) of the metadata and does not need to drive a version change.

5.1 Identification

The identification structure of DDI objects is core to the functioning of the standard. The purpose of the DDI identification structure is to:

- Uniquely identify major objects in a persistent manner to ensure accurate reference and retrieval of the object content
- Provide context for objects where an understanding of related object types within a packaging structure is essential to the understanding of the object (i.e., a specific classification within a classification scheme)
- Manage metadata object change over time
- Support the range of object management used by different organizations
- Support early and late binding of references
- Support interaction with closely related standards, in particular ISO/IEC 11179 and SDMX

The identification structure is based on the ISO/IEC 11179 structure that requires a three-part means of unique identification.

OB-JECT	ISO/IEC 11179	DDI
Agency Identifier	A unique identifier for the agency managing the object	A unique identifier for an agency registered with the DDI Alliance. The agency may have multiple sub-agency extensions managed within the DDI Registry or within the primary agency. An agency and sub-agency are separated by an “.”.

Agency Identifier | A unique identifier for the agency managing the object | A unique identifier for an agency registered with the DDI Alliance. The agency may have multiple sub-agency extensions managed within the DDI Registry or within the primary agency. An agency and sub-agency are separated by an “.”. |

|| a) the agency (sub-agency), or |

|||

|| b) within the parent maintainable. If the context is the parent maintainable the Unique ID is the ID of the parent maintainable plus the ID of the object within that maintainable separated by a “.”. |

Version Number	A version number of the object to track change over time	A version number with any number of extensions separated by a “.”.
----------------	--	--

This three part structure is the equivalent of a unique persistent identifier for an object, such as described by DOIs and other similar structures. Note that while use of a version number with a DOI is optional, based on local practice, the Version Number in DDI is required due to the need to manage metadata within a dynamic workflow over time.

5.1.1 Scope of Uniqueness

DDI 3.2 onwards supports scoping the uniqueness of identifier to the parent Maintainable or to the Agency (sub-agency). This choice affects the structure of the ID as it appears within the Canonical URN (see Type of Identifier below). Essentially, when the ID is scoped to the Agency the unique identification of an object requires the Agency, ID of the object, and Version Number of the object. When the ID is scoped to the Maintainable the unique identification of a non-Maintainable object requires the Agency, ID of the parent Maintainable, the ID of the object, and the Version Number of the object. The attribute `scopeOfUniqueness` is required and must contain either “Agency” or “Maintainable”. This attribute defines how the ID will be expressed in the Canonical URN and what is required for a complete reference to the object within the Maintaining Agency.

5.1.2 Type of Identifier

DDI 3.2 onwards supports two formats for expressing the Identification Sequence as a URN.

The *Canonical URN* is recommended. The *Deprecated URN* is a modification of the DDI 3.1 URN.

Whether the identification information is expressed as a URN or using the Identification Sequence the attribute “`typeOfIdentifier`” on the URN dictates the format of the URN supported internally by the agency and the format of the URN used by an external reference to that object. Note that regardless of the type of identifier used it is good practice to provide the full content of the Identification Sequence and details of the `MaintainableObject` for non-Maintainable objects in order to support the creation of any format of a DDI URN.

5.1.3 Structure of the URN

Canonical URN

Each section of the Canonical URN is separated by a “:” (colon). Within the ID section the Maintainable ID and Object ID are separated by a “.” (dot).

`urn:ddi:agency{[]}.sub-agency{[]}:ID:Version`

If the `scopeOfUniqueness` equals “Agency” the ID is the ID of the object.

Example: Canonical URN with uniqueness scoped to the Agency

Object V321 version 2 within the Minnesota Population Center (us.mpc)

`urn:ddi:us.mpc:V321:2`

Object V321 version 2 within the Minnesota Population Center, Project IPUMS (listed as a sub-agency within us.mpc)

urn:ddi:us.mpc.ipums:V321:2

If the scopeOfUniqueness equals “Maintainable” the ID of a non-Maintainable object is structured as follows:

urn:ddi:agency[{}].sub-agency[{}]:MaintainableID.ObjectID:Version

Example: Canonical URN with uniqueness scoped to the Maintainable

Variable V321 version 2 within VariableScheme VS1 at the Minnesota Population Center (us.mpc)

urn:ddi:us.mpc:VS1.V321:2

Variable V321 version 2 within VariableScheme VS1 at the Minnesota Population Center, Project IPUMS (listed as a sub-agency within us.mpc)

urn:ddi:us.mpc.ipums:VS1.V321:2

Deprecated URN

Each section of the Deprecated URN is separated by a “:” (colon).

“urn:ddi:agency[{}].subagency[{}]:MaintainableObject:ObjectType:ObjectType:ObjectID:ObjectType:Version”

If the object itself is Maintainable the information on the parent maintainable is not included:

urn:ddi:agency[{}].sub-agency: ObjectType:ObjectID:ObjectVersion

If the scopeOfUniqueness equals “Agency” the ID is the ID of the object.

Example: Deprecated URN with uniqueness scoped to the Agency

Object V321 version 2 within the Minnesota Population Center (us.mpc)

urn:ddi:us.mpc:Variable:V321:2

Object V321 version 2 within the Minnesota Population Center, Project IPUMS (listed as a sub-agency within us.mpc)

urn:ddi:us.mpc.ipums:Variable:V321:2

If the scopeOfUniqueness equals “Maintainable” the ID of a non-Maintainable object is structured as follows:

urn:ddi:agency[{}].subagency[{}]:MaintainableObject:ObjectType:ObjectType:ObjectID:ObjectVersion

Example: Deprecated URN with uniqueness scoped to the Maintainable

Variable V321 version 2 within VariableScheme VS1 at the Minnesota Population Center (us.mpc)

urn:ddi:us.mpc:VariableScheme:VS1:Variable:V321:2

Variable V321 version 2 within VariableScheme VS1 at the Minnesota Population Center, Project IPUMS (listed as a sub-agency within us.mpc)

urn:ddi:us.mpc.ipums:VariableScheme:VS1:Variable:V321:2

5.2 Identifiable, Versionable, and Maintainable

DDI differentiates between a set of element types. Not all objects are individually identifiable, i.e. some objects only have meaning within the context of an identifiable object such as a Label or Description. The remaining objects are Identifiable, Versionable or Maintainable in order to support different levels of metadata management.

5.2.1 Identifiable

Identifiable objects are those that can be referenced directly either or inclusion in another object or for the purpose of attaching Other Material or a Note to the object.

Identifiable objects have a unique ID within the context of their specified scope of uniqueness (see Scope of Uniqueness discussion within this section). Their Agency Identification and Version Number match those of the object's immediate parent Versionable (or Maintainable if there is not a parent Versionable) at the point of creation. This means that if an Identifiable object is created within a version 1 of a parent Versionable and does NOT change its content over time it will retain its Version Number of 1 until the identifiable object itself is altered. It will then change its Version Number to that of its parent Versionable at the time of the alteration.

In other words an Identifiable could go from a Version 1 to a Version 4 without ever having a Version 2 or 3 if the cause for versioning did not involve any change in the Identifiable object within Version 2 and 3 of the parent Versionable.

Identifiable Object	Extension base is AbstractIdentifiable
URN	See URN Structure below
@type-OfIdentifier	URN used by Agency [Canonical Deprecated]
Agency	Base sequence of identification. If sequence is used, all are required.
ID	
Version	
UserID	
@typeOfUserID	A user specified identification for a specific system such as a DOI or internal search engine. Both the ID and @typeOfUserID must be specified. Version information is optional.
@userID-Version	
@typeOfUserVersion	
MaintainableObject	
TypeOfObject	The Maintainable object containing the Identifiable object. TypeOfObject is required to create Deprecated URN. ID is required for any URN if ScopeOfUniqueness = "Maintainable". Version number provides context base.
MaintainableID	
MaintainableVersion	
@inheritanceAction	See Grouping: Inheritance
@object-Source	The object source of a resolved reference
@scope-OfUniqueness	Scope used by Agency [Agency Maintainable]
@IsUniversallyUnique	States the scope of uniqueness for the ID
@isIdentifiable	Fixed value = "true" [specifies object base]

5.2.2 Versionable

A *Versionable object* has the characteristics of an Identifiable object but may be managed over time.

DDI has determined that being able to tack change within the object over time is a requirement, either to understand the relationship to earlier objects of a similar type or to track provenance.

Note that it is up to the individual content provider to determine whether an object is essentially new or is a modification

(version) of an earlier object. Versionable objects have a unique ID within the context of their specified scope of uniqueness (see Scope of Uniqueness discussion within this section). Their Agency identification matches that of the object's immediate parent Maintainable at the point of creation.

In other words the Agency of an object does not change simply because it is included by reference in a Maintainable managed by a different agency. The Version number of the object changes each time its content changes. See Versioning for a discussion of when and how this may be implanted within different organizations or projects.

Versionable Object	Extension base is AbstractIdentifiable
URN	See URN Structure below
@typeOfIdentifier	URN used by Agency [Canonical Deprecated]
Agency	Base sequence of identification. If sequence is used, all are required.
ID	
Version	
UserID	
@typeOfUserID	A user specified identification for a specific system such as a DOI or internal search engine. Both the ID and @typeOfUserID must be specified. Version information is optional.
@userIDVersion	
@typeOfUserVersion	
UserAttributePair	
AttributeKey	User defined Key/Value pair used to support interaction of the metadata within the user's system.
Attribute-Value	
VersionResponsibility	Who within the Agency versioned the object
VesionResponsibilityReference	Alternate reference to who versioned the object
VersionRationale	Reason for version change (to inform user)
BasedOnReference	
MaintainableObject	
TypeOfObject	The Maintainable object containing the Identifiable object. TypeOfObject is required to create Deprecated URN. ID is required for any URN if ScopeOfUniqueness = "Maintainable". Version number provides context base.
MaintainableID	
MaintainableVersion	
@inheritanceAction	See Grouping: Inheritance
@objectSource	The object source of a resolved reference
@scopeOfUniqueness	Scope used by Agency [Agency Maintainable
@IsUniversallyUnique	States the scope of uniqueness for the ID
@isVersionable	Fixed value = "true" [specifies object base]
@versionDate	Date/Time of version change

5.2.3 Maintainable

A *Maintainable object* is a type of packaging and generally takes the form of either a module or scheme.

Modules package metadata focused on specified segments of the Lifecycle for which context is important for understanding.

Schemes are similar to data base tables, containing a stack of similar type objects that many have important contextual relevance to each other, i.e. a classification scheme captured in a DDI Category Scheme. There is one unique form of a Maintainable which is the CodeList. A CodeList is a Maintainable in its own right for the purpose of supporting the statistical production process. However it can only be published within the context of a parent Maintainable Scheme.

All Schemes and Modules may be published within the context of a Study Unit or Group (a collection of Study Units) or as a separate Resource Package item primarily for the purpose of reuse.

Maintainable Object	Extension base is AbstractMaintainable
URN	See URN Structure below
@typeOfIdentifier	URN used by Agency [Canonical Deprecated]
Agency	Base sequence of identification. If sequence is used, all are required
ID	
Version	
UserID	
@typeOfUserID	A user specified identification for a specific system such as a DOI or internal search engine. Version information is optional. Both the ID and @typeOfUserID must be specified.
@userIDVersion	
@typeOfUserVersion	
UserAttributePair	
AttributeKey	User defined Key/Value pair used to support interaction of the metadata within the user's system.
AttributeValue	
VersionResponsibility	Who within the Agency versioned the object
VersionResponsibilityReference	Alternate reference to who versioned the object
VersionRationale	Reason for version change (to inform user)
BasedOnReference	
Note	Notes related to objects with the maintainable (Payload)
Software	Software used to create the Maintainable object (Payload)
MetadataQuality	Quality of the metadata in the Maintainable object (Payload)
MaintainableObject	Same as Identifiable Object
@inheritanceAction	See Grouping: Inheritance
@objectSource	The object source of a resolved reference
@scopeOfUniqueness	Scope used by Agency [Agency Maintainable
@IsUniversallyUnique	States the scope of uniqueness for the ID
@isMaintainable	Fixed value = "true" [specifies object base]
@versionDate	Date/Time of version change
@externalReferenceDefaultURI	Indicates that the content is available for reuse by reference
@isPublished	Indicates that the contents are persistent and can be referenced by external documents
@xml:lang	The language of the metadata in the Maintainable object (Payload)

5.3 Modules and Schemes

Maintainable objects are of two basic types, Modules and Schemes.

Modules roughly relate to stages in the life cycle or publishing packages. Publishing packages pull together related material regarding a study, a series or group of studies, reusable resources, or deposited objects. Modules like DataCollection, LogicalProduct, PhysicalDataProduct, and ConceptualComponents bring together sets of information related to specific activities, the results of a study, or conceptual background. They may include other modules, schemes, or non-scheme based objects.

Schemes are designed to bring together sets of similar objects (i.e. Variables, Concepts, RecordLayouts, etc.) which are managed as a unit for either conceptual or administrative purposes. Schemes have a common structure providing descriptive information about the scheme, a set of similar objects, and the ability to group those objects for administrative purposes.

Figure 2. The relationship between identifiable, versionable and maintainable type objects

Identifiable Object	Versionable Object	Maintainable Object
URN @typeOfIdentifier Agency ID Version	URN @typeOfIdentifier Agency ID Version	URN @typeOfIdentifier Agency ID Version
UserID @typeOfUserID @userIDVersion @typeOfUserVersion	UserID @typeOfUserID @userIDVersion @typeOfUserVersion	UserID @typeOfUserID @userIDVersion @typeOfUserVersion
	UserAttributePair AttributeKey AttributeValue	UserAttributePair AttributeKey AttributeValue
	VersionResponsibility VersionResponsibilityReference VersionRationale BasedOnObject	VersionResponsibility VersionResponsibilityReference VersionRationale BasedOnObject
		Note Software MetadataQuality
MaintainableObject TypeOfObject MaintainableID MaintainableVersion	MaintainableObject TypeOfObject MaintainableID MaintainableVersion	MaintainableObject TypeOfObject MaintainableID MaintainableVersion
@inheritanceAction @objectSource @scopeOfUniqueness @isUniversallyUnique	@inheritanceAction @objectSource @scopeOfUniqueness @isUniversallyUnique	@inheritanceAction @objectSource @scopeOfUniqueness @isUniversallyUnique
	@versionDate	@versionDate
		@externalReferenceDefaultURI @isPublished @xml:lang
@isIdentifiable	@isVersionable	@isMaintainable

N.B.Those names starting with @ are XML attributes, all others are XML elements.

The following objects which consist of the extension bases used for identification and referencing purposes are considered to be Administrative metadata for the purposes of versioning:

5.3.1 Reference and Scheme Reference Type

Reference Type

Reference Type	
URN	The URN of the object being referenced using the specified URN structure
@typeOfIdentifier	URN used by Agency [Canonical Deprecated]
Agency	Base sequence of identification. If sequence is used, all are required.
ID	The ID of the object being referenced.
Version	The Version of the object being referenced. This is the full Version number at the time the reference is created.
TypeOfObject	Type of object being referenced. This is a controlled list.
MaintainableObject	The Maintainable object containing of the Identifiable or Versionable object being referenced.
TypeOfObject	TypeOfObject is required to create Deprecated URN
MaintainableID	Required for any URN if ScopeOfUniqueness="Maintainable".
MaintainableVersion	Provides context base
@isExternal	Boolean attribute. If "true" you must supply the URN
@externalReferenceDefaultURI	A local store for the referenced object expressed as a URI
@isReference	Fixed value = "true" [specifies object base]
@lateBound	Boolean attribute. Set to "true" if you wish to late-bind the reference (i.e., want to reference the most recent version)
@lateBoundRestriction	If @lateBound="true" and this attribute is not provided you will get the most recent version. Use this attribute to restrict the value of the late-bind, for example to restrict to the most recent minor version of major version
@objectLanguage	Specify the desired language content (if available) for the referenced item using a valid xml:lang value.
@sourceContext	The URN of the parent maintainable at the time of reference (this is not necessarily the same version number as the version of the parent maintainable at point of origin)

Scheme Reference Type

Scheme Reference Type	
URN	The URN of the object being referenced using the specified URN structure
@typeOfIdentifier	URN used by Agency [Canonical Deprecated]
Agency	Base sequence of identification. If sequence is used, all are required.
ID	The ID of the object being referenced.
Version	The Version of the object being referenced. This is the full Version number at the time the reference is created.
TypeOfObject	Type of object being referenced. This is a controlled list.
MaintainableObject	The Maintainable object containing of the Identifiable or Versionable object being referenced.
TypeOfObject	TypeOfObject is required to create a Deprecated URN
MaintainableID	Required for any URN if ScopeOfUniqueness="Maintainable".
MaintainableVersion	Provides context base
Exclude	Allows the identification of objects within the Scheme which are to be excluded for the purpose of this reference.
ID	The ID of the excluded object.
Version	The Version of the excluded object.
@isExternal	Boolean attribute. If "true" you must supply the URN
@externalReferenceDefaultURI	A local store for the referenced object expressed as a URI
@isReference	Fixed value = "true" [specifies object base]
@lateBound	Boolean attribute. Set to "true" if you wish to late-bind the reference (i.e., want to reference the most recent version)
@lateBoundRestriction	If @lateBound="true" and this attribute is not provided you will get the most recent version. Use this attribute to restrict the value of the late-bind, for example to restrict to the most recent minor version of major version
@objectLanguage	Specify the desired language content (if available) for the referenced item using a valid xml:lang value.
@sourceContext	The URN of the parent maintainable at the time of reference (this is not necessarily the same version number as the version of the parent maintainable at point of origin)

Figure 3. The relationship between ReferenceType and SchemeReferenceType

Reference Type	Scheme Reference Type
URN @typeOfIdentifier Agency ID Version	URN @typeOfIdentifier Agency ID Version
	Exclude ID Version
TypeOfObject	TypeOfObject
MaintainableObject TypeOfObject MaintainableID MaintainableVersion	MaintainableObject TypeOfObject MaintainableID MaintainableVersion
@isExternal @externalReferenceDefaultURI @isReference @lateBound @lateBoundRestriction @objectLanguage @sourceContext	@isExternal @externalReferenceDefaultURI @isReference @lateBound @lateBoundRestriction @objectLanguage @sourceContext

5.4 Administrative and Payload Metadata

The differentiation between Administrative metadata and Payload metadata lies primarily in how changes to the metadata content drive version changes.

Administrative metadata is content that is related to the interaction or use of the metadata within a specific system. Changes in administrative metadata do not change the meaning of the metadata content of the object in terms of its DDI identification or intellectual meaning. For example, the addition of a local User Identification to facilitate interaction between the metadata object and local access software, or creating a URN entry from existing identification sequence content are considered to be changes to the Administrative metadata. A change in Administrative metadata does not trigger a change in the version number of a published object.

Payload metadata is all metadata *NOT defined* as Administrative. Payload metadata contains intellectual content that has an impact on the meaning or application of the object. A change in Payload metadata generally triggers a change in the version number of a published object.

[REFERENCE TO APPENDIX WITH LIST OF CONTENT THAT IS ADMIN OR PAYLOAD]

6.1 DDI Instance and DDI Fragments

TODO

6.2 Strings

All DDI string content is based on an extension of `xs:string` and is designed to support the use of multiple language content for a given element where appropriate, structured text content, and for questionnaire related materials, dynamic text. In addition, DDI supports the use of external controlled vocabularies through the structure `CodeValue` which identifies the source and location of the external controlled vocabulary as well as the term content.

The basic structure is an `xs:string` which allows for any character in any sequence. Note that XML ignores leading and trailing white spaces as well as control characters like tabs and hard returns. In short it will ignore internal structuring of content.

DDI has created the following `xs:string` extensions to provide support for content structure and language specification where needed. In some cases, such as the value of a code, leading and trailing spaces are important to both understanding and matching the content. Elements of `type="ValueType"` provide the attribute `xml:space` with which the user can declare that leading and trailing white spaces have implications for the meaning of the content.

The default value of `xml:space` is "default". This states that the leading and trailing spaces may be stripped off. By changing the value of `xml:space` to "preserve" the user specifies that leading and trailing spaces should be retained as they are critical to the understanding of the content.

All elements of `type="InternationalStringType"` support the use of one or more strings with equivalent language content.

A common example of this occurs in all primary element names, i.e., `VariableName`. An `InternationalStringType` bundles together one or more language equivalents of the same content. This requires the use of a sub-element "String" which is repeated for each language provided. String contains attributes to designate the language of the content and basic translation information.

```

<l:VariableName>
  <r:String xml:lang="en" isTranslated="false" isTranslatable="true">Household_
↪Relationship</r:String>
  <r:String xml:lang="fr" isTranslated="false" isTranslatable="true">Relation des_
↪ménages</r:String>
  <r:String xml:lang="es" isTranslated="true" isTranslatable="true"
    translationSourceLanguage="en" translationDate="2012-12-03">Relación de Hogares</
↪r:String>
</l:VariableName>

```

What this example states is that the contents of the three strings are language equivalents for the VariableName content. The English and French are both original language content. The Spanish content is a translation of the English done on 2012-12-03. All the content may be translated. Bundling language equivalents together within a single object clarifies which language strings contain the same meaning when an object is repeatable.

All elements of a StructutedStringType use the sub-element “Content”. Content supports the same language structures using the same attributes as an InternationalStringType. In addition Content may contain a limited set of XHTML structure tags to provide structure to the content. There is one additional attribute “isPlainText” has been added to clarify if the content is to be treated as plain text (no formatting structure). The default value for this attribute is “true”. If the content contains structure tags this attribute should be changed to “false”. Label and Description are two commonly used elements of this type.

A full list of allowed XHTML tags and their usage is found in the appendixes [Appendix B – XHTML Tags Supported by DDI]. The following example is a Description using an unordered (i.e., bulleted) list. Note that, like InternationalStringType the sub-element Content can be repeated for language equivalents.

```

<r:Description>
  <r:Content xml:lang="en" isTranslated="false" isTranslatable="true"
    isPlainText="false">A single person may include any of the following:
    <xhtml:list>
      <xhtml:item>Never married</xhtml:item>
      <xhtml:item>Widowed</xhtml:item>
      <xhtml:item>Divorced</xhtml:item>
    </xhtml:list>
  </r:Content>
</r:Description>

```

It would be interpreted as:

A single person may include any of the following: - Never married - Widowed - Divorced

Note that if isPlainText=”true” the same line would be interpreted as:

A single person may include any of the following:

```


```

```

<xhtml:list><xhtml:item>Nevermarried</xhtml:item>
<xhtml:item>Divorced</xhtml:item></xhtml:list>

```

```

<xhtml:item>Widowed</xhtml:item>

```

6.3 Citation and Coverage

Citation in DDI is used by all publication structures, Physical Instance, Other Material, and Collection or Item descriptions. A citation in DDI reflects the content of a basic bibliographic citation. All citations support the use of full Dublin Core Terms. The fields in the DDI citation support linking to Organizations and Individuals described in an

Organization Scheme where appropriate. Note that the citation in Physical Instance is the citation for the related data file.

Coverage is represented in a separate section available in all maintainable modules. Coverage is separated into Temporal, Topical, and Spatial coverage. It is assumed that coverage expressed in a Study Unit or Group represents the extent of coverage of their contained modules. A module such as DataCollection may be expressed as a restriction of the parent Study Unit. For example, a Data Collection for a specific time period within the full temporal coverage of the Study Unit, or a Physical Instance for a data set that covers only a single country within a multi-country study.

Citation and Coverage are intended to contain information that is readily mapped to external search systems that support standard Dublin Core-like discovery metadata and should reflect the needs of these external systems. The use of shared or common subject headings or thesauri facilitate discovery in these systems.

6.4 Dates

With the exception of describing the date format in a data capture system or as it is represented in a data file, DDI requires the use of the standard ISO 860 formats for all machine actionable dates. ISO 860 uses the Gregorian calendar so dates in other calendars must be translated. The basic form of a date in DDI is the BaseDateType which is a union of ISO dates types including:

xml property	ISO Format	Example
xs:dateTime	yyyy-mm-ddThh:mm:ss	1982-01-05T23:05:15
xs:date	yyyy-mm-dd	1982-01-05
xs:gYearMonth	yyyy-mm	1982-01
xs:gYear	yyyy	1982
xs:duration	PnnYnnMnnDTnnHnnMnn	SP26Y02M12DT11H05M20S

Note that all upper case letters are literals, for example, the “T” in dateTime is literal, denoting the beginning of the Time section. Seconds (ss) may contain decimals. Optionally, dateTime can be extended by a time zone offset of “Z” to represent Zulu time or GMT. For example, Eastern Standard Time is Z-4, Central Europe is Z+1.

“P” in xs:duration indicates that this is a Period of duration and the number precedes the type of period, (i.e., nnY is the number of Years). A period may be of negative duration by placing a negative sign before the “P”, for example a period of minus 10 days (-P10D).

Elements of DateType support the use of a single date or date range. Date ranges are assumed to be inclusive. While normally a range will have a StartDate and EndDate, DDI supports the use of open ranges where only the StartDate or EndDate is known. SimpleDate, StartDate, and EndDate are all BaseDateType.

All dates may be replicated in their HistoricalDate format to reflect how the date was expressed in original documentation. Historical date information parallels the simple date, start date and end date structures of the standard DateType. The date is captured as a string in NonISODate, the format is provided in HistoricalDateFormat (supports the use of a controlled vocabulary), and the calendar type may be specified in Calendar (supports the use of a controlled vocabulary). HistoricalDate, HistoricalStartDate, and HistoricalEndDate are all HistoricalDateType

The overall date format is composed of three primary structures, BaseDateType, DateType, and HistoricalDateType:

Eight elements are defined as DateType. Three additional elements use DateType as an extension base, adding specific additional elements or attributes to define the use of the date in that particular location. Five attributes use BaseDateType. Usage locations are listed below.

Element using DateType	
datacollection.xsd	DataCollectionDate
reusable.xsd	EffectivePeriod
reusable.xsd	GeographicTime
reusable.xsd	PublicationDate

Element using extension base DateType	
datacollection.xsd	DataCollectionFrequency
reusable.xsd	AccessRestrictionDate
reusable.xsd	ReferenceDate

Attribute using BaseDateType	
reusable.xsd	authorizationDate
reusable.xsd	completionDate
reusable.xsd	validForEndDate
reusable.xsd	validForStartDate
reusable.xsd	versionDate

6.4.1 Usage

The standard Date structure supports single dates and date ranges with a start date only, start and end date, and end date only. Single date should only be used for events attached to a specific date, a point in time rather than a period of time. This allows capturing dates as expressed in original documents or to capture more descriptive date information.

All dates must be expressed in the standard ISO 8601 format but may also be expressed as a HistoricalDate. This is simply a string containing the historical date and an attribute historicalDateFormat used to specify the non-ISO date format.

Historical date information parallels the simple date, start date and end date structures of the standard DateType.

6.4.2 Examples

Simple Date [\[add link\]](#) Complete Date Range [\[add link\]](#) Range with unknown start date [\[add link\]](#) Range with unknown end date [\[add link\]](#)

6.5 Name, Label, and Description

DDI modules designed to contain published objects (DDIInstance, StudyUnit, Group, ResourcePackage, LocalHoldingPackage, and PhysicalInstance) all contain full citation information which provides detailed information on the name of the object, as well as means of labeling and describing it. DDI has identified a number of objects, primarily non-publication structure modules, schemes, and versionable objects within schemes as items that have the potential to be managed in an ISO/IEC 11179 type repository. In line with ISO/IEC 11179-5, DDI has provided this set of objects with a sequence of a name, label, and description. Label and Description are standard structures.

6.5.1 Name

Name is used as a type specification for a specific object name, i.e. VariableName type="r:NameType". A complete listing of objects of NameType will be found in Appendix: X.

A name is what an object is called within a registry. All elements of type NameType may be repeated to supply different names for different contexts, such as different sections within a registry system. Do not repeat the use of the NameType object to capture multilingual content. This is handled by the base type, InternationalString [see pt2:2.5.1]. Each String within the NameType represents the same content in a different language. Each language string can be identified by its language designation (with optional country specification, i.e. en-UK), with information on whether the content was translated, can be translated (i.e. is not machine code), the source languages for the translation, and the translation date. The two attributes specific to NameType identify the preferred name if multiple name sets are available and capture the context within which the specified name is used. If the element of type NameType is repeated, it is the attribute context which is used to disambiguate between the options. The attribute isPreferred allows the content creator to designate the preferred or default name for the object.

NameType

6.5.2 Label

A Label is intended to provide content for use in a display (a table layout, printed content, web site, etc.). In all locations where Label is used it may be repeated to reflect different types of label (i.e. a short label, or a full label, etc.). The Label uses an extension base of StructuredStringType which managed both multilingual content and allows for the use of a set of xhtml structure tags.

Differences in the intended use of each Label are expressed by the element TypeOfLabel and a set of attributes that apply to all language versions of the Label. The TypeOfLabel uses the extension base CodeValueType which supports the use of an external controlled vocabulary (see pt2:2.5.1). The attribute locationVariant is an xs:string to allow for either a common geographic specification such as a country code or a descriptive term (i.e. urban, northwest region, etc.). For Labels with a limited period of use the pair of attributes validForStartDate and validForEndDate allow clear specification for when a Label is valid. Finally the attribute maxLength is useful for identifying labels that must meet a specific length limitation, for example in publishing content within a specific format or software system.

Label

6.5.3 Description

Description is of type StructuredStringType with no additional extensions. It generally appears with a cardinality of 0..1. If it is important to differentiate between original and added content it is possible to do this by using the content structure features of the StructuredString (see pt2:2.5.1). Note that if the object containing the Name, Label, Description sequence may be used in a comparison process, providing content for Description is critical as comparison is based upon the comparison of the Description of the object, not its Name or Label.

Description

6.6 Notes

A Note is designed to capture local information related to one or more identifiable objects. Note is designed to be an inherent part of the DDI. The information may be passed along with a DDI object over its lifetime. It is not intended to replace formal extension mechanisms. Formal extension should be used whenever a locally used object needs to be added to the schema. However, run-time extension needs may arise and Note can be used to capture the required metadata and associate it with the appropriate object.

Note may be used to capture information during processing which is then removed prior to publication. Removing a Note removes all the links to related objects within the DDI structure.

DDI recommends placing the Note within the maintainable object containing the objects referenced by the Note. Each note may indicate who is responsible for the note, its type using a controlled vocabulary, the subject of the note, a head

and note content, a set of key/value pairs and language specification for the overall note. In addition each note must be related to one or more identifiable objects.

A Note may be classified by its type and subject. `TypeOfNote` should express the purpose of the note (e.g. processing note, request for review, run time extension, etc.). `NoteSubject` is used to express the topical subject of the Note. Both `TypeOfNote` and `NoteSubject` may be expressed using a controlled vocabulary. `Relationship` provides a reference to any object with an ID, preferably within the same maintainable, and a description of the relationship if needed for clarity. This is expressed as a structured string. The direction of the link between a Note and another object is always from the Note to the object.

The Header provides a brief label or heading for the `NoteContent` which is expressed as a structured string. The provision of `ProprietaryInfo` (a `StandardKeyValuePair`) allows for the expression of the content as a tuple (attribute key and value pair) to support computer systems and applications. The overall language of the Note can be provided with the `xml:lang` attribute.

6.7 User Attribute Pairs

`UserAttributePair` is a structure that supports the use of a user specified standard key value pair, this can be attached to any `VersionableType`, (these are listed in the documentation for `UserAttributePair`).

The intent of this structure is that it allows the addition of business specific metadata for primarily internal processes that is not likely to be widely shared between different organisations.

Examples of usage would be:

- Holding adhoc information about individuals such as place and date of birth,
- Adding additional functionality to an existing element such as a controlled vocabulary to copyright to support internal systems.

6.8 In / Out Parameter, Binding and Command Code

6.8.1 InParameter, OutParameter, Binding

`InParameter` and `OutParameter` share the contents of `Parameter`. `InParameter` adds the attribute `limitedArrayIndex` used to specify the object(s) in the zero-based array used by the `Parameter`. This is used only when the attribute `isArray` is set to “true”. The `Parameter` provides the standard `Parameter Name` and `Description` elements.

An optional `Alias` may be defined in cases where a command is written using a `Alias`. This allows a clear link between for example, the term `AGE` in the command “If `AGE` >= 21” and in `InParameter` with the `Alias` value of “`AGE`”.

This is particularly useful when using external `CommandFile` scripts which would not contain the ID of the `InParameter` in the command. `ValueRepresentation` allows for a definition of the expected contents and is recommended if you are sharing data with others. `DefaultValue` provides a value to use if the `OutParameter` bound to the `InParameter` provides no value. `Binding` is a simple linkage indicating the contents of a specified `SourceParameter` provide the value for the `TargetParameter`.

Object	In Parameter	Out Parameter	Binding	Source Code	Command Code
QuestionItem	x	x	x		
QuesitonGrid	x	x	x		
Question Block	x	x	x		
ControlConstruct	x	x	x		
IfCondition					x
UntilCondition					x
While Condition					x
Initial Value					x
LoopWhile					x
StepValue					x
ComputationItem					x
ControlConstructReference			x		
InterviewerInstrcution	x		x		
GeneralIstruction					x
GenerationInstruction					x
Category/Generation					x
DynamicText	x				
DynamicText/Expression	x				
ResponseDomain		x			
CodeSubsetInfo					
CommandCode	x	x	x		
Command	x	x	x		
CommandFile	x	x	x		
Variable				x	

6.8.2 Command Code

DDI provides a generic Command Code structure that supports the inclusion of an inline command in a specified programming language, a reference to an external file containing the command code, and the use of a StructuredCommand which serves as an extension stub for the insertion of a command code using an external namespace. CommandCode makes use of the new InParameter, OutParameter, and Binding available in primary locations throughout DDI in order to more clearly define the inputs to processes and algorithms used in collecting, altering, and revising data as it travels through the lifecycle into a data file.

The Command indicates the programming language of the command, specifies InParameters (items of information required to process the command), OutParameters, (items of information generated by the command), Binding (linking the output of an object external to the Command to the InParameter), and the CommandContent. If using a command stored as an external file, CommandFile provides the same program language information, InParameter, OutParameter, and Binding options as well as a description of the file location and a URI for the file.

6.9 Quality Descriptions

DDI addresses descriptions of quality at three levels, the quality of the metadata as captured, means of ensuring policy for processing, and the quality of the data. Statements regarding the quality standards used for processing or measuring the quality of the data related to the metadata may be referenced from the following areas: study unit, group, sub-group, resource package, methodology, various descriptions of data processing, data file creation or copying, and archival processing.

6.9.1 Metadata Quality

Metadata quality is captured at the level of the Maintainable object and refers to the metadata contained in that object. It is held in the complex element MetadataQuality which is found in AbstractMaintainable. It is a relatively simple statement of quality such as completeness, transcription of content from the original source, level of review or verification, etc.

Both TypeOfMetadataQuality and MeasureValue are CodeValueType and support the use of an external controlled vocabulary. These are the two primary pieces of information needed to track metadata quality internally within an organization. TypeOfMetadataQuality identifies the measure being tracked and MeasureValue provides a specific value for that measure. For example, an organization may have a number of measures one of which rates its transcription quality.

It may have various values for this including:

- 1) Tagging and transfer of a digital content,
- 2) double entry,
- 3) single entry direct transcription,
- 4) selected transcription, and
- 5) summarization. T

he purpose for capturing the measure is held in MeasurePurpose (StructuredStringType) and other descriptive information that is useful to the organization or in particular a user, is held in Description (StructuredStringType).

6.9.2 Quality Statement

Quality statements are compiled in a QualityStatementScheme which may be published within a StudyUnit, Group, or ResourcePackage. Quality statements primarily address processes and steps that are taken to ensure quality within those processes. A QualityStatement allows for either the identification of an external standard plus a statement regarding compliance with that standard, or a general statement of steps taken to ensure quality for a given process or activity. A QualityStatement is attached to a processing area by reference from the description of the process/activity itself.

StandardsCompliance consists of a reference to the Standard using the structure of OtherMaterial. This could reference a document, web site, or other source containing a formal standard for processing, best practice, internal protocol, or other statement of quality. ComplianceDescription (StructuredStringType) provides details on how this standard or protocol was applied, in particular noting any deviations or issues that would have an impact on the quality factors being assessed.

When no formal standard or protocol exists, use OtherQualityStatement (StructuredStringType) to describe steps taken to ensure quality. Quality statements can be referenced from the following locations and should relate quality assessment information focused on the process activity or general coverage area where the reference is included.

6.9.3 Data Quality

The quality of the data collected is addressed in the ProcessingEvent containing DataAppraisalInformation. This contains two common measures of data quality from survey methodology, ResponseRate and SamplingError. It also allows for the description of other quality measures in OtherAppraisalProcess. Note that ProcessingEvent also contains a QualityStatementReference. This should be used to relay information on process quality. DataAppraisalInformation is used primarily to capture the results of data appraisal measures.

The response rate can be repeated to express differing response rates by mode of deliver, location, etc. The individual response rates may be expressed as a total sample size with number of responses and/or as a specific response rate.

The description should be used to differentiate when multiple response rates are provided. SamplingError (Structured-StringType) is intended to contain a discussion of the sampling error. It may be structured to differentiate between the statement of the error itself, how it was calculated, etc. OtherAppraisalProcess allows for the description of other measures of data appraisal as needed.

7.1 Administration

A description of what administration means

- DDInstance
- DDProfile
- Group
- LocalHoldingPackage
- OtherMaterial
- ResourcePackage
- StudyUnit

7.2 Comparison

- Comparison
- GenericMap
- RepresentationMap

7.3 Data Capture

DDI-L supports both data capture from questions and measurements. The latter being introduced in DDI-L 3.3.

7.3.1 Questions

As the complexity of question structures has increased, three general question structures have been identified within DDI and are addressed by the following specific structures: `QuestionItem`, `QuestionGrid`, and `QuestionBlock`.

Note that all three structures reflect the reusable structure of various question types and do not relay any information on the applied use of the question within an instrument. The applied information, including question order, is captured by the `ControlConstruct` structures used by the Instrument.

All question structures are maintained within a `QuestionScheme` and can be further organized for administrative purposes by `QuestionGroup` (a standard grouping structure available in most schemes). Only `QuestionItem`, `QuestionGrid`, and `QuestionBlock` may be referenced by a `QuestionConstruct`.

A `Sequence` (type of `ControlConstruct`) is used to order questions within an instrument and is maintained separately as a reusable object. All question structures are versionable and contain a name for the question. All response domains may be described inline while a set of commonly used structures may be captured as managed representations and be reused by reference. These include `Missing Values`, `Text`, `Numeric`, `DateTime`, and `Scale`.

QuestionItem

A `QuestionItem` is a basic question containing a `QuestionIntent`, the concept being measured by the question, text for the question, response domain information, clarifying instructions, external aids (clarifying objects used in presenting the question to the respondent), `Input` and `Output Parameters` and `Bindings`, allowed response cardinality and an estimation of the time required to respond. The `QuestionText` is a `DynamicTextString`. Note that due to the variation of content in the `QuestionText` that is required to illicit equivalent responses in different languages, `QuestionText` is repeatable. A `StructuredMixedResponseDomain` supports situations where a response may include more than one type of response domain. This could be the inclusion of a set of `Missing Values` (responses that capture non-response and other values to be treated as invalid during analysis), or the commonly used addition of a text response to capture specific information when the code or category response is “Other”. `StructuredMixedResponse` allows for the addition of text and/or another response domain to be attached to one or more values of the primary response domain as well as stacking combinations of response options with intervening text.

QuestionGrid

A `QuestionGrid` provides a multidimensional structure used to capture a complex response. In many cases these are simple structures, for example a question regarding an assessment of each of a list of candidates for political office. However, some grids are complex and capture different responses for each of a list of items. In addition, the list may be provided by the question or by the respondent (indicated by the use of a “roster” of blank text items). A `QuestionGrid` contains the basic elements of the `QuestionItem` but rather than a `ResponseDomain` or `StructuredMixedResponseDomain` contains a `GridDimension` that sorts one or more `ResponseDomains` or `StructuredMixedGridResponseDomains` into a specific dimension of the grid. The structure is similar to the `NCube` dimensional structure using code domain or roster rather than variables to structure the dimension, and then providing a response domain for each cell in the grid. A single `ResponseDomain` indicates that this is the response domain for each cell in the grid. Note that an internal cell label may be added to any cell for clarification purposes.

QuestionBlock

A `QuestionBlock` is intended to bundle together a set of questions (items and/or grids) that have meaning only in relation to a specified object expressed as the stimulus material. This form of question set is common in educational testing where a text, image, or other material is provided and the respondent is asked questions specific to the material. For example, a portion of a play script is provided and the respondent is asked question concerning the dialog and/or stage directions provided in the script. Note that the intent of `QuestionBlock` is NOT to bundle together a set of questions that are commonly used together or used in a specified order.

A Sequence (type of control construct) is the appropriate way to manage this type of set relationship. It is assumed that one or more StimulusMaterial objects will be used. The 0..n cardinality of the CHOICE of StimulusMaterial, QuestionItemReference, and QuestionGridReference is provided simply to support the use of DDI during the development process when this piece of information may be unavailable. StimulusMaterial is part of this choice to allow for its insertion at any location before, after, or in the midst of the referenced Questions.

QuestionBlock contains the standard elements of QuestionItem and QuestionGrid and then structures any combination of StimulusMaterial with referenced QuestionItems and QuestionGrids. It allows for an indication of QuestionSequence (i.e., a means of declaring the sequence is important or that it can be randomized or otherwise altered).

MeasurementItem

A MeasurementItem is analogous to a QuestionItem, the difference being that the QuestionText is replaced by a TypeofMeasurementItem which is a CodeValueType for which a controlled vocabulary may be used, and a MeasurementItemIntent which is a textual description of what the MeasurementItem is designed to measure.

7.3.2 ControlConstructs

The following items are designed to be used to control the flow or processing within an Instrument

- ComputationItem
- GeneralInstruction
- GenerationInstruction
- IfThenElse
- Loop
- MeasurementConstruct
- ProcessingEvent
- QuestionConstruct
- RepeatUntil
- RepeatWhile
- Sequence
- StatementItem
- Split
- SplitJoin

7.3.3 Other

- DataCollection
- Instrument
- Instruction

7.4 Data Description

- ConceptualVariable
- DataRelationship
- DataSet
- LogicalProduct
- ManagedDateTimeRepresentation
- ManagedMissingValuesRepresentation
- ManagedNumericRepresentation
- ManagedScaleRepresentation
- ManagedTextRepresentation
- NCube
- PhysicalDataProduct
- PhysicalInstance
- PhysicalStructure
- QualityStandard
- QualityStatement
- RecordLayout

7.4.1 Represented Variable

A scheme of reusable Represented Variables was added to Logical Product in order to better support ISO/IEC 11179 by the maintenance and reuse of the basic components of variables. It is analogous to the GSIM Represented Variable. A Represented Variable consists of a reference to a Conceptual Variable or

to a Concept and Universe (the components of a Conceptual Variable) plus a definition of its representation expressed as a Category Scheme or a Value Representation. This limited structure makes the DDI Represented Variable more generic than the full ISO/IEC 11179 model as it does not include a Represented Variable example, derivation, or derivation rule. Enumerated values are expressed by reference to a Category Scheme or by use of a Code Representation (which contains references to the associated categories). Non-enumerated values may be described broadly or as specifically as supported by the Value Representation structure.

Represented Variables are managed within a Represented Variable Scheme containing all of the common Scheme structures including a Represented Variable Group which allows for associating a group of Represented Variables with a specific Concept or Universe and/or a set of Subjects and Keywords. As with other Groups of objects within Schemes, the Represented Variable Group can be typed and represent order and un-ordered lists or hierarchies.

While a Represented Variable by definition requires a Universe (Object), Concept, and Representation (Value Domain) these are optional in DDI to support production work during which all references may not be available. Note that when referenced by a Variable, the Variable may further constrain the Concept, Universe, and Value Representation. For example: The Concept of Age to a subordinate concept of Physiological Age; Universe of Persons to Persons residing within Luxembourg; and Numeric Representation of single year increments to top coding of 99.

The Represented Variable is a conceptual model of the combination of a concept linked to a specific universe or object that is represented in a particular way. A Variable is the applied use of a Represented Variable where the universe may be further refined (Variable Example 1) and the exact parameters of the representation are defined in greater detail (Variable Example 2). The DDI Represented Variable reflects the structure of the ISO/IEC 11179 Data Element. Note

that the Value Representation of the Represented Variable may be broadly defined. The exact details and/or content restrictions for the representation may be added when referenced by a Variable used within a specific application.

- Variable
- VariableStatistics
- Weighting
- WeightingMethodology

7.5 Foundational

- Category
- CodeList
- Concept
- ConceptualComponent
- Individual
- Organization
- Relation
- SubUniverseClass
- UnitType
- Universe

7.6 Geographic

- GeographicLocation
- GeographicStructure

7.7 Grouping

- CategoryGroup
- CodeListGroup
- ConceptGroup
- ConceptualVariableGroup
- ControlConstructGroup
- DevelopmentActivityGroup
- GeographicLocationGroup
- GeographicStructureGroup
- Group
- InstructionGroup

- InstrumentGroup
- ManagedRepresentationGroup
- MeasurementGroup
- NCubeGroup
- OrganizationGroup
- OtherMaterialGroup
- PhysicalInstanceGroup
- PhysicalStructureGroup
- ProcessingEventGroup
- ProcessingInstructionGroup
- QualityStandardGroup
- QualityStatementGroup
- QuestionGroup
- RecordLayoutGroup
- RepresentedVariableGroup
- UnitTypeGroup
- UniverseGroup
- VariableGroup

7.8 Schemes

Schemes are designed to bring together sets of similar objects (i.e. Variables, Concepts, RecordLayouts, etc.) which are managed as a unit for either conceptual or administrative purposes. Schemes have a common structure providing descriptive information about the scheme, a set of similar objects, and the ability to group those objects for administrative purposes.

- CategoryScheme
- CodeListScheme
- ConceptScheme
- ConceptualVariableScheme
- ControlConstructScheme
- DevelopmentActivityScheme
- GeographicLocationScheme
- GeographicStructureScheme
- InstrumentScheme
- InterviewerInstructionScheme
- ManagedRepresentationScheme
- MeasurementScheme

- NCubeScheme
- OrganizationScheme
- OtherMaterialScheme
- PhysicalStructureScheme
- ProcessingEventScheme
- ProcessingInstructionScheme
- QualityScheme
- QuestionScheme
- RecordLayoutScheme
- RepresentedVariableScheme
- SamplingInformationScheme
- UnitTypeScheme
- UniverseScheme
- VariableScheme

7.9 Statistical Classification

added in DDI-Lifecycle 3.3

Statistical Classification is a specialized class of code lists that are managed and shared between statistical agencies. Statistical agencies frequently collect data on similar topics; industry, occupation, education, communication, etc. To meet the needs of statistical agencies the structure needs to manage the development of classifications over time, noting changes and comparison as well as who owns the classification. Comparisons are created between a series or versions of the same statistical classifications as well as between classifications covering the same type of information.

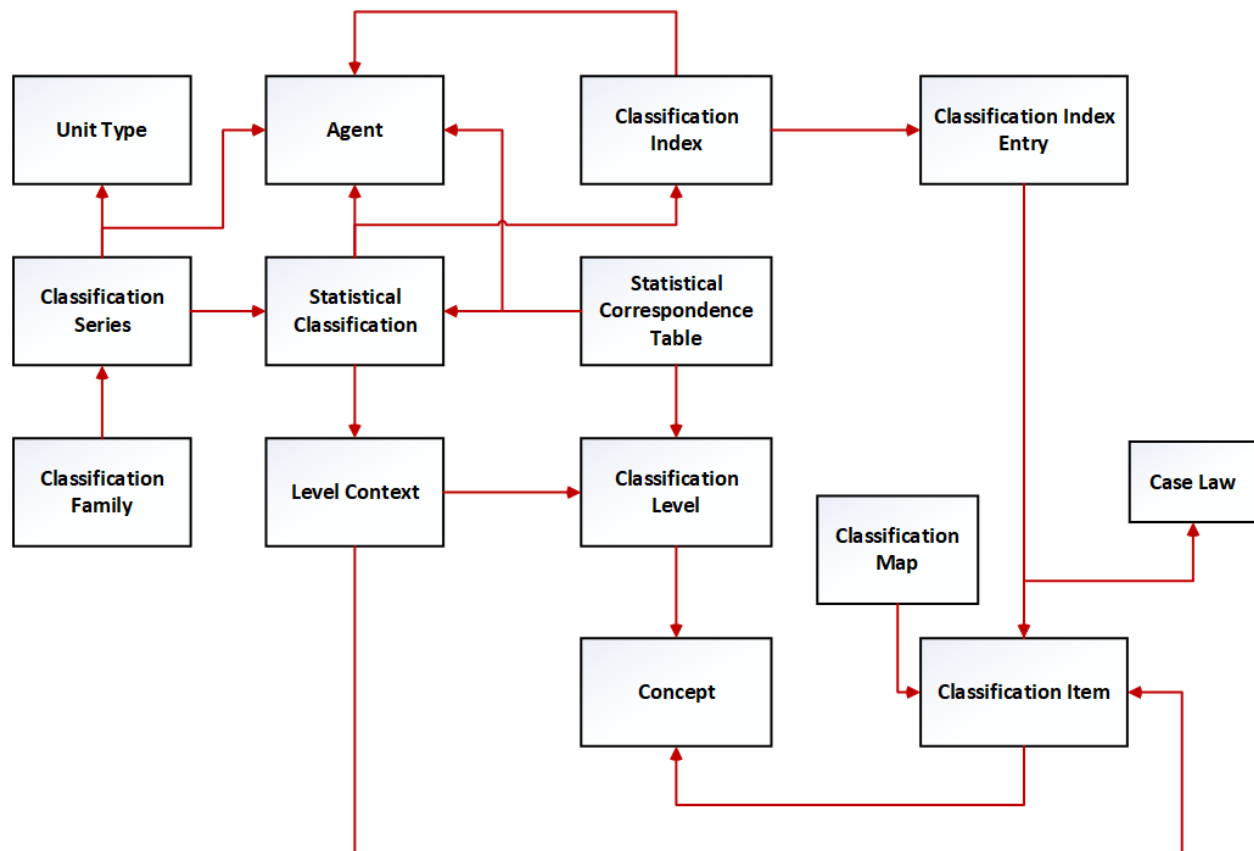
The DDI Lifecycle set of classes dealing with Statistical Classification has a strong relationship with the GSIM model reflecting the ability to organize and describe hierarchical classifications with levels that have meaning in themselves.

A Statistical Classification describes levels in terms of their meaning, relationship to other levels, and the Classification Items contained within the level. DDI focuses on the ability to maintain these objects over time and to reuse contents (such as a classification item) in more than one Statistical Classification (primarily over time). The primary chain of information is the Statistical Classification composed of an organization of one or more levels defined by a concept, containing one or more Classification Items. Statistical Classifications can be grouped in a Classification Series (example North American Industry Classification System (NAICS) versions 2003, 2014, and 2017). Classification Series can be organized into a Classification Family. An example would be Industry which may include Classification Series for NAICS, SIC, and the International Standard Industrial Classification.

Comparison and linkages within and between classifications and series are captured by Classification Maps and often expresses in a Classification Index which supports searching and cross-classification exploration.

DDI has expanded Representations to support the direct use of Statistical Classifications as Value Representations or Response Domain. The structure is similar to that used for expressing Code Lists, Geographic Structure Codes, or Geographic Location Codes. It allows for the use of the full structures, specific levels, ranges of codes, or specified codes. This allows the user to retain the context of codes within their original classification structure.

Figure 1. Overview of Statistical Classification



7.10 Study

7.10.1 Archive

When DDI talks of archive it is referring to specific activities that take place for the purpose of organizing and preserving the metadata and related data files. Archive activities are performed by the individual or organization responsible for maintaining and preserving the metadata. This could be the individual researcher, a data production organization, or a formal archive dedicated to the preservation of metadata and data. It focuses on the information related to management, preservation, and access.

Archive is a module which contains two types of information. The first is information specific to the instance of the metadata in a specific location. This “ArchiveSpecific” information may have no relevance outside of a specific location. For example, information on the physical storage location of the metadata parts, how they fit into a local collection, or what related materials the archive may contain. In addition to the “ArchiveSpecific” information, the Archive module contains a record of events that are significant in the life of the metadata and houses the OrganizationScheme which describes the organizations and individuals related to the metadata.

OrganizationScheme and its contents are described in “Organizations, Individuals, and Relations” (xx.xx.xx). An OrganizationScheme may be included in-line or by reference. This allows for the maintenance of a master OrganizationScheme as a ResourcePackage and the inclusion of the relevant sections in individual Archive modules.

The Archive section describes the overall structure of the module, describes the ArchiveSpecific information and provides details on AccessType which is used to describe both default and specific access restrictions at the level of the archive, the collection, or an item.

The Archive contains an ArchiveModuleName, Label, and Description to support its maintenance within a registry

system. The purpose of the module is to organize the information about the location, management, and important events surrounding the metadata to which it belongs. ArchiveSpecific information is discussed below and the details of the OrganizationScheme are found in “Organizations, Individuals, and Relations” (xx.xx) . A key feature in Archive is the LifeCycleInformation object which contains an unsorted stack of LifecycleEvents. These events are identifiable and may have Note or OtherMaterials attached to them. These should all be contained within the Archive module so they do not risk becoming disassociated with the related object.

LifeCycle Information

A LifecycleEvent is any event that the user decides has value to the archive or the end user. Capturing data and metadata processing information related to ingest and management of metadata within an archive or similar organization is a common use of this section.

The LifecycleEvent contains a label for the event, specifies the type of event being captured (supports the use of a controlled vocabulary for this object), specifies the date of the event, the organizations or individuals involved by reference to their description in an OrganizationScheme, and describes the event. The event may be attached to one or more identifiable objects within the metadata by use of Relationship. This is the same structure as used in Note(xxx.xx) and OtherMaterial (xxx.xx).

Archive specific

ArchiveSpecific focuses on the place of the metadata within the collections of the organization which maintains the original or a local depository copy. The first object in ArchiveSpecific is a reference to the description of the Archive-Organization itself. This description within an OrganizationScheme should contain all of the relevant contact information for the Archive Organization, any special identifiers such as its DDI Agency identification, information on how it handles versioning, and any other information that would be useful to anyone needing to interact with the agency. Item and Collection, both of which can internally nested objects of the same type, provide flexibility for the archive to describe its holdings.

At the level of ArchiveSpecific you can describe the general or DefaultAccess rules and processes for the Archive (these may be superseded by rules for specific items or collections), FundingInformation for archival processing or collection and Budget information. QualityStatements, such as adherence to OAIS or various certification programs, are included here by reference. A statement of the overall coverage of the archive may be described in spatial, temporal, and topical terms.

Item and Collection are similar in structure. Archives deal with addressable byte streams, files, representations (objects collectively representing an intellectual entity), as well as collections and sub- collections of those objects. An archive should be internally consistent in how it organizes this information about the objects it contains, but DDI does not dictate the organization structure. For example, a Representation may be described as an Item containing several sub-items each representing a file and/or byte stream. Others may define a Representation a form of Collection with an Item used to define individual files and byte streams.

Both Item and Collection capture the following information about a digital object: a citation for the object, it's physical location in the archive such as a remote or offline storage location, a CallNumber (internal identification number), the URI, the StudyClass which is used to represent any processing or other non-topical means of classification within the archive, a reference to the original archive organization (where did it come from), availability status, quantity of related data files, a statement concerning the completeness of the collection, and a recursive object (Item or Collection) used to create nested hierarchies.

The unique objects in Item refer to the physical manifestation of a single item including the ItemFormat, Media, and Access restrictions/permissions specific to the Item. The unique objects in Collection reflect its description of a set of objects including, ItemQuantity (a check sum), and DefaultAccess providing restrictions/permissions for the set (these can be overridden at the item level).

AccessType is used by both Access and DefaultAccess to describe the details of any permissions or restrictions related to a specific object or a set of objects. In general, default access specifications at the archive or collection level are

applied to their contained objects unless overridden by conflicting Access information lower down. For example, an archive may have a policy of open access to all users, but a specific collection may require registration, or an individual object may be private and inaccessible to any users outside of the research project that created it. AccessType is identifiable so that external documents may be associated with it. It contains a Name, Label, and Description to assist in managing multiple access statements. Note that while the term “restriction” is used the content may be captured as descriptions of specific restrictions or permissions, whichever is clearer.

- AccessRestrictionDate provides a timeframe for the access description.
- ContactOrganizationReference provides a reference to the organization or individual to contact for further information regarding access. If an organization or sub-organization is referenced, changes in personnel or contact numbers can be captured in the
- OrganizationScheme. The following descriptive content are all of type StructuredStringType supporting both language replication and structured content for clarity: - ConfidentialityStatement, - Restrictions, - CitationRequirement, - DepositRequirement, - AccessConditions, and - Disclaimer.
- AccessPermission is a reference to a specific form, either physical or digital, used to arrange for access to an item. It contains a form number, a URI, a Statement relaying the use and purpose of the access form (InternationalStringType), and a Boolean attribute indicating whether completion of the form is required for access.

7.10.2 Group

7.10.3 StudyUnit

7.11 Survey Development

7.11.1 Sampling

Includes:

- Methodology
- Sample
- SampleFrame
- SampleStep
- SamplingInformationGroup
- SamplingPlan
- SamplingStage
- WeightingMethodology

Sampling Procedure has been extended to link to a Sampling Plan and a specific Sample used during data capture.

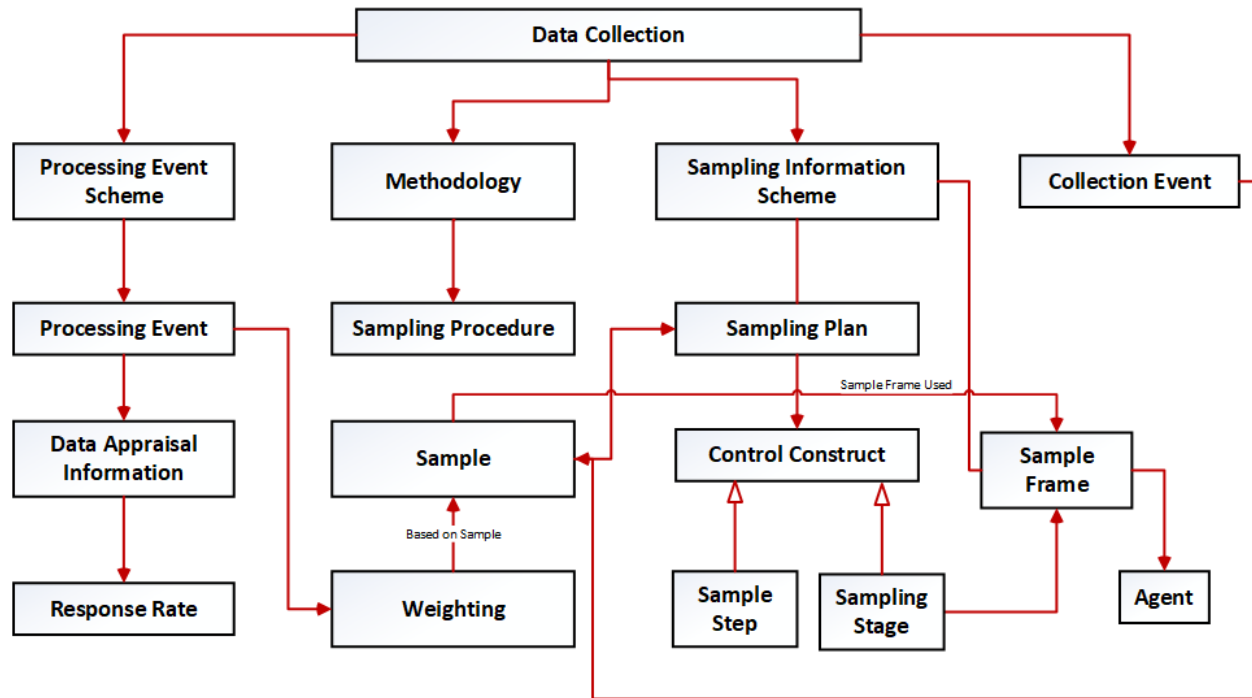
Sampling Plan provides both basic information on the intended target population as well as the split and/or stratification rationale generally provided by codebooks for studies using a sample of a population rather than a full census of the population. The Sampling Plan can link to a process (defined by Control Construct subtypes). Two new Control Construct specializations have been added to describe a Sample Step and a Sampling Stage. Sample Step describes requirements for acceptance, stratification description, and any commands or processes needed to perform the sample. Sampling Stage describes the sampling unit, Sample Frame requirements needed to support the sampling process, probability of selection, and stratification. It may also recommend a Sample Frame that will meet those requirements.

A Sample describes the implementation of a Sampling Plan as well as the specific Sample Frame(s) used. It specifies the population of concern, the overall target sample size as well as actual sample size, the data of the sample,

and application details. A Sample can be referenced by a Sampling Procedure, a specific Collection Event, and by Weighting. At its simplest a Sample provides a basic description of the resulting sample, its size and type.

Sampling Plans and Sample Frames can be organized and grouped within a Sampling Information Scheme. They are also capable of capturing complex sample stages including stratification, and experimental design models.

Figure 1. Overview of Sampling - Capturing the process and linking information to the Collection Event



7.11.2 Data Capture Development

Includes:

- Development Activity - CognitiveExpertReviewActivity - CognitiveInterviewActivity - ContentReviewActivity - FocusGroupActivity - PretestActivity - TranslationActivity
- DevelopmentImplementation
- DevelopmentPlan
- DevelopmentResults
- DevelopmentStep

The process of creating and testing instruments to capture data through questionnaires, measurement, or reuse of existing data can be complex. Recording this information provides process blueprints and verification for large products as well as valuable information for the user who may need to understand how a question, measurement, or protocol was developed and tested in order to understand the data captured by the final instrument. This approach supports the reuse of tested activities and approaches within a discipline as well as iterations of a Development Plan within a project over time. Data Capture Development incorporates the use of the Lifecycle process model expresses with Control Constructs. It adds one specialized Control Construct (Development Step) and two general use subtypes of Control Construct (Split and SplitJoin) which allow for non-specific sequencing of process steps and actions.

Development work is directed towards specific objects:

- Questions: wording, response domain, translation, and instructions

- Measurements: choice of measurement device, calibration, interpretation, response domain, and instructions
- Control Construct: algorithm or process used, sequencing, routing, and instructions
- Instrument: presentation, mode specific variations, choice of mode, and instructions

The primary objects used to capture development information include:

Development Plan - describes object and cost structure of the plan, the development object, and the Development Activities included in the plan.

Development Activity - has a number of specializations in areas of development that are well developed such as translation work. All specializations describe the desired outcomes, process summary, recommended staff requirements (such as language fluency), other required resources, a debriefing process. This basic information may be used without having to detail the specific Development Steps taking place in an implementation.

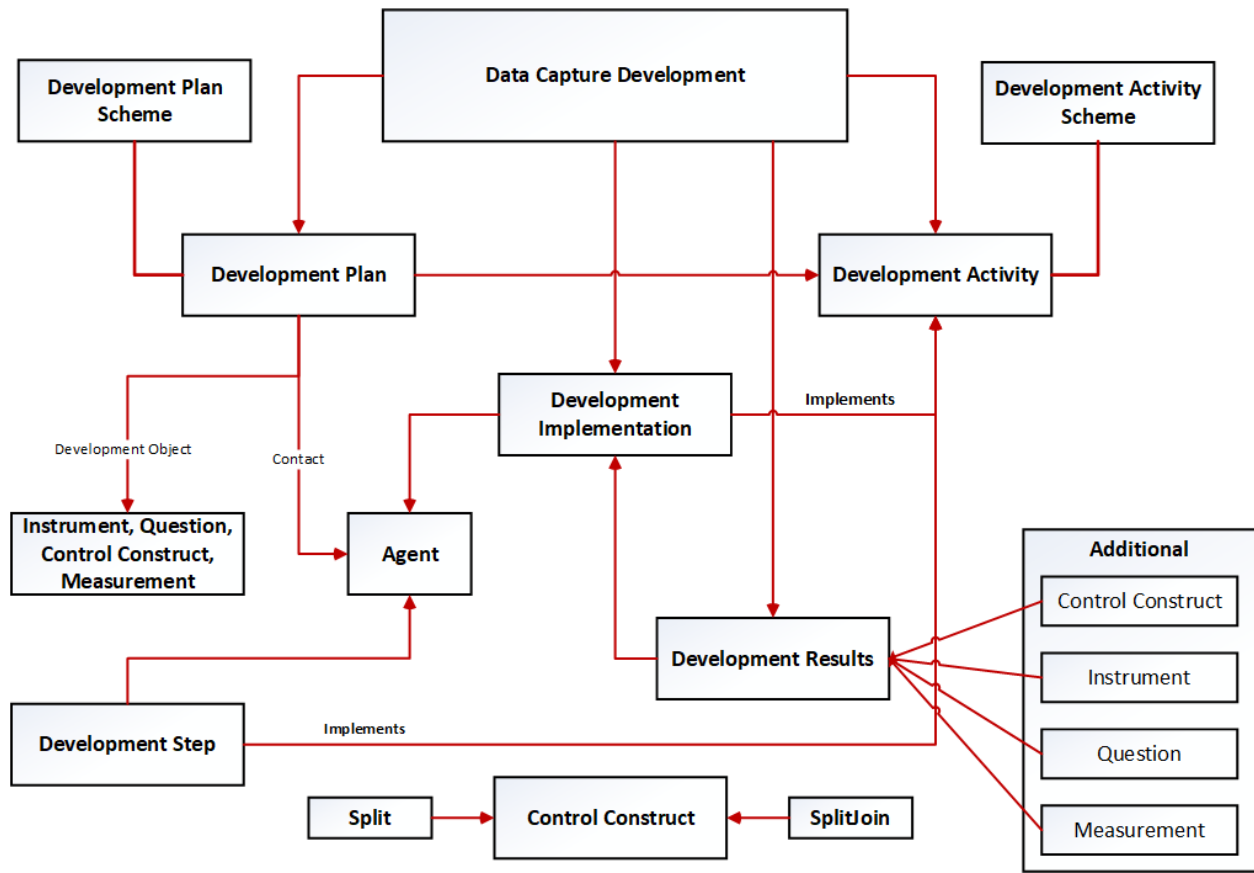
Development Implementation - specifies the information of actual development work. What Development Activity was implemented, who performed the activity, and when the action was completed. It can provide detailed information on the steps of the process including internal iterations and validation criteria.

Development Step (specialization of a Control Construct) - implements a Development Activity for a Development Object. It captures information on the prerequisite for the step, conditions for acceptance (when the step is complete and can be exited), and the date of the activity. This can be a single process step or part of a more complex process.

Development Results - describe the final result of a the implementation of a development activity. The objects of the development work can now link to the appropriate Development Results and then follow this back to specific a Development Implementation of a Development Activity.

Note that the process of selection, access to, and reuse of existing data found in registries, administrative data systems, or published data is captured using a Collection Event containing a process description or instrument (such as an API). Data Capture Development can describe the development of single or sequenced Control Constructs expressed individually or within an Instrument.

Figure 2. Overview of Data Capture Development



7.11.3 Weighting

8.1 Archive

```

<?xml version="1.0" encoding="UTF-8"?>
<!--
-->

  <a:Archive xmlns:ddi="ddi:instance:3_3" xmlns:a="ddi:archive:3_3" xmlns:c=
↪ "ddi:conceptualcomponent:3_3" xmlns:cm="ddi:comparative:3_3" xmlns:d=
↪ "ddi:datacollection:3_3" xmlns:g="ddi:group:3_3" xmlns:l="ddi:logicalproduct:3_3"
↪ xmlns:p="ddi:physicaldataproperty:3_3" xmlns:pi="ddi:physicalinstance:3_3" xmlns:pr=
↪ "ddi:ddiprofile:3_3" xmlns:r="ddi:reusable:3_3" xmlns:s="ddi:studyunit:3_3"
↪ xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:xhtml="http://www.w3.org/1999/
↪ xhtml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation=
↪ "ddi:instance:3_3 ../../XMLSchema/instance.xsd" isMaintainable="true"
↪ scopeOfUniqueness="Agency">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Arch_1:1</r:URN>
    <a:ArchiveModuleName context="IPEDS"><r:String xml:lang="en-US">MPC_NHGIS_HIST1900
↪ </r:String></a:ArchiveModuleName>
    <r:Label><r:Content xml:lang="en-US">MPC NHGIS Archive Record for HIST1900</
↪ r:Content></r:Label>
    <r:Description><r:Content xml:lang="en-US">Information specific to the HIST1900
↪ data files and documentation in the NHGIS project</r:Content></r:Description>
    <a:ArchiveSpecific>
      <a:ArchiveOrganizationReference isReference="true" isExternal="true" lateBound=
↪ "false">
        <r:URN>urn:ddi:us.mpc:OrgS_MPCwide:1.0</r:URN>
        <r:TypeOfObject>OrganizationScheme</r:TypeOfObject>
      </a:ArchiveOrganizationReference>
      <a:Collection>
        <r:Citation>
          <r>Title><r:String>NHGIS Historical 1900</r:String></r>Title>
        </r:Citation>

```

(continues on next page)

(continued from previous page)

```

<a:ItemQuantity>2</a:ItemQuantity>
<a:AvailabilityStatus><r:Content>On-Line</r:Content></a:AvailabilityStatus>
<a>DataFileQuantity>4</a>DataFileQuantity>
<a:CollectionCompleteness><r:Content>Original data dictionary, DDI_
↳documentation, US level data file, State level data file, and County level data_
↳file.</r:Content></a:CollectionCompleteness>
  <a:Item>
    <r:Citation>
      <r>Title><r:String>us1990cnty</r:String></r>Title>
    </r:Citation>
    <a:LocationInArchive><r:String>aggdata/Translation/HIST/us1990cnty.sps</
↳r:String></a:LocationInArchive>
    <a:ItemFormat>ASCII text</a:ItemFormat>
    <a:AvailabilityStatus><r:Content>archive</r:Content></a:AvailabilityStatus>.
    <a>DataFileQuantity>1</a>DataFileQuantity>
    <a:CollectionCompleteness><r:Content>SPSS setup file and related data file.
↳</r:Content></a:CollectionCompleteness>
  </a:Item>
  <a:Item>
    <r:Citation>
      <r>Title><r:String>Census of Population for National, State, and County_
↳Levels - 1900: NHGIS documentation</r:String></r>Title>
    </r:Citation>
    <a:LocationInArchive><r:String>NHGIS/metadata/DDI/HIST1900-cnty.xml</
↳r:String></a:LocationInArchive>
    <a:ItemFormat>xml</a:ItemFormat>
    <a:AvailabilityStatus><r:Content>NHGISsubversion</r:Content></
↳a:AvailabilityStatus>
    <a>DataFileQuantity>3</a>DataFileQuantity>
    <a:CollectionCompleteness><r:Content>DDI documentation, US level data file,
↳State level data file, and County level data file.</r:Content></
↳a:CollectionCompleteness>
  </a:Item>
  <a:Collection>
    <a:DefaultAccess isIdentifiable="true" scopeOfUniqueness="Agency">
      <r:URN>urn:ddi:us.mpc:NHGIS_ACCESS_1:1</r:URN>
      <a:AccessTypeName context="IPEDS"><r:String xml:lang="en-US">MPC_NHGIS_ACCESS
↳</r:String></a:AccessTypeName>
      <r:Label><r:Content xml:lang="en-US">NHGIS Access Requirements</r:Content></
↳r:Label>
      <r>Description><r:Content xml:lang="en-US">Describes access and usage_
↳requirements for NHGIS</r:Content></r>Description>
      <a:ConfidentialityStatement><r:Content xml:lang="en-US">NHGIS contains public_
↳data obtained through the U.S. Census Bureau.</r:Content></
↳a:ConfidentialityStatement>
      <a:AccessPermission isRequired="true">
        <r:URI>https://data2.nhgis.org/users/login</r:URI>
      </a:AccessPermission>
      <a:Restrictions><r:Content xml:lang="en-US">The National Historical_
↳Geographic Information System (NHGIS) provides, free of charge, aggregate census_
↳data and GIS-compatible boundary files for the United States between 1790 and 2010.
↳</r:Content></a:Restrictions>
      <a:CitationRequirement><r:Content xml:lang="en-US"><xhtml:div>All persons are_
↳granted a limited license to use this documentation and the accompanying data,
↳subject to the following condition:<xhtml:ul><xhtml:li>Publications and research_
↳reports based on the database must cite it appropriately. The citation should_
↳include the following: Minnesota Population Center. National Historical Geographic_
↳Information System: Version 2.0. Minneapolis, MN: University of Minnesota<xhtml:ol>
↳<xhtml:li><xhtml:li>If possible, citations should also include the URL for the NHGIS_
↳site: http://www.nhgis.org</xhtml:li></xhtml:ul><xhtml:br/>In addition, we request_
↳that users send us a copy of any publications, research reports, or educational_
↳material making use of the data or documentation. Printed material should be sent_
↳to:<xhtml:br/>NHGIS<xhtml:br/> Minnesota Population Center<xhtml:br/> University of_
↳Minnesota<xhtml:br/>50 Willey Hall<xhtml:br/>225 19th Ave S<xhtml:br/>Minneapolis,

```

(continued from previous page)

```

    <a:AccessConditions><r:Content xml:lang="en-US">Preregistration</r:Content></
↳a:AccessConditions>
    <a:AccessRestrictionDate><r:StartDate>2001-05-01</r:StartDate></
↳a:AccessRestrictionDate>
    <a:ContactOrganizationReference isReference="true" isExternal="true"
↳lateBound="false">
        <r:URN>urn:ddi:us.mpc:OrgS_MPCwide:1.0</r:URN>
        <r:TypeOfObject>OrganizationScheme</r:TypeOfObject>
    </a:ContactOrganizationReference>
    </a:DefaultAccess>
    </a:ArchiveSpecific>
    <r:OrganizationSchemeReference isReference="true" isExternal="true" lateBound=
↳"false">
        <r:URN>urn:ddi:us.mpc:OrgS_MPCwide:1.0</r:URN>
        <r:TypeOfObject>OrganizationScheme</r:TypeOfObject>
    </r:OrganizationSchemeReference>
    <r:LifecycleInformation>
        <r:LifecycleEvent isIdentifiable="true" scopeOfUniqueness="Agency">
            <r:URN>urn:ddi:us.mpc:NHGIS_Event_1:1</r:URN>
            <r:Label><r:Content xml:lang="en-US">HIST1900-cnty aquisition</r:Content></
↳r:Label>
            <r:EventType>Aquisition</r:EventType>
            <r>Date><r:SimpleDate>2001-03-10</r:SimpleDate></r>Date>
            <r:AgencyOrganizationReference isReference="true" isExternal="true" lateBound=
↳"false">
                <r:URN>urn:ddi:us.mpc:OrgS_MPC_NHGIS:1.0</r:URN>.
                <r:TypeOfObject>Organization</r:TypeOfObject>
            </r:AgencyOrganizationReference>
            <r>Description><r:Content xml:lang="en-US">The 1900 History file was aquired
↳as part of a collection of 1900-1950 data entered from printed documents through
↳NHGIS subcontract.</r:Content></r>Description>
            <r:Relationship>
                <r:RelatedToReference isReference="true" isExternal="false" lateBound="false
↳">
                    <r:URN>urn:ddi:us.mpc:NHGIS_HIST1900-cnty:1</r:URN>
                    <r:TypeOfObject>StudyUnit</r:TypeOfObject>
                </r:RelatedToReference>
                <r:RelationshipDescription><r:Content xml:lang="en">DDI Documentation</
↳r:Content></r:RelationshipDescription>
            </r:Relationship>
        </r:LifecycleEvent>

        <r:LifecycleEvent isIdentifiable="true" scopeOfUniqueness="Agency">
            <r:URN>urn:ddi:us.mpc:NHGIS_Event_2:1</r:URN>.
            <r:Label><r:Content xml:lang="en-US">HIST1900-cnty creation of DDI metadata
↳document</r:Content></r:Label>
            <r:EventType>DDICreation</r:EventType>
            <r>Date><r:SimpleDate>2001-04-01</r:SimpleDate></r>Date>
            <r:AgencyOrganizationReference isReference="true" isExternal="true" lateBound=
↳"false">
                <r:URN>urn:ddi:us.mpc:OrgS_MPC_NHGIS:1.0</r:URN>
                <r:TypeOfObject>Organization</r:TypeOfObject>
            </r:AgencyOrganizationReference>
            <r>Description><r:Content xml:lang="en-US">Data dictionary information plus
↳additional content from original print documents and materials regarding the 1900 U.
↳S. Census in IPUMS were compiled in DDI and verified.</r:Content></r>Description>
            <r:Relationship>

```

(continues on next page)

(continued from previous page)

```

    <r:RelatedToReference isReference="true" isExternal="false" lateBound="false
↪">
      <r:URN>urn:ddi:us.mpc:NHGIS_HIST1900-cnty:1</r:URN>
      <r:TypeOfObject>StudyUnit</r:TypeOfObject>
    </r:RelatedToReference>
    <r:RelationshipDescription><r:Content xml:lang="en">DDI Documentation</
↪r:Content></r:RelationshipDescription>
  </r:Relationship>
  <r:Relationship>
    <r:RelatedToReference isReference="true" isExternal="false" lateBound="false
↪">
      <r:URN>urn:ddi:us.mpc:NHGIS_OtherMat_1:1</r:URN>
      <r:TypeOfObject>OtherMaterial</r:TypeOfObject>
    </r:RelatedToReference>
    <r:RelationshipDescription><r:Content xml:lang="en">Data Source</r:Content>
↪</r:RelationshipDescription>
  </r:Relationship>
</r:LifecycleEvent>

<r:LifecycleEvent isIdentifiable="true" scopeOfUniqueness="Agency">
  <r:URN>urn:ddi:us.mpc:NHGIS_Event_3:1</r:URN>
  <r:Label><r:Content xml:lang="en-US">HIST1900-cnty integration into 2001_
↪NHGIS release</r:Content></r:Label>
  <r:EventType>NHGISIntegration</r:EventType>
  <r>Date><r:SimpleDate>2001-05-01</r:SimpleDate></r>Date>
  <r:AgencyOrganizationReference isReference="true" isExternal="true" lateBound=
↪"false">
    <r:URN>urn:ddi:us.mpc:OrgS_MPC_NHGIS:1.0</r:URN>
    <r:TypeOfObject>Organization</r:TypeOfObject>
  </r:AgencyOrganizationReference>
  <r>Description><r:Content xml:lang="en-US">The HIST1900-cnty metadata and_
↪data files were successfully integrated into the NHGIS system for the May 2001_
↪release.</r:Content></r>Description>
  <r:Relationship>
    <r:RelatedToReference isReference="true" isExternal="false" lateBound="false
↪">
      <r:URN>urn:ddi:us.mpc:NHGIS_HIST1900-cnty:1</r:URN>
      <r:TypeOfObject>StudyUnit</r:TypeOfObject>
    </r:RelatedToReference>
    <r:RelationshipDescription><r:Content xml:lang="en">DDI Documentation</
↪r:Content></r:RelationshipDescription>
  </r:Relationship>
</r:LifecycleEvent>
</r:LifecycleInformation>
<r:OtherMaterial isVersionable="true" scopeOfUniqueness="Agency" xml:lang="en">
  <r:URN>urn:ddi:us.mpc:NHGIS_OtherMat_1:1</r:URN>
  <r:TypeOfMaterial>Print.Book</r:TypeOfMaterial>
  <r>Description><r:Content xml:lang="en-US">Data source</r:Content></
↪r>Description>
  <r:Citation>
    <r>Title><r:String>Twelfth Census of the United States Taken in the Year 1990,
↪ Census Reports Volume I - Population Part I</r:String></r>Title>
    <r:Creator>
      <r:CreatorName affiliation="Interior Department"><r:String>United States_
↪Census Office</r:String></r:CreatorName>
    </r:Creator>
    <r:Publisher>

```

(continues on next page)

(continued from previous page)

```

        <r:PublisherName><r:String>Washington: United States Census Office</
↪r:String></r:PublisherName>
        </r:Publisher>
        <r:PublicationDate>
        <r:SimpleDate>1901</r:SimpleDate>
        </r:PublicationDate>
    </r:Citation>
</r:OtherMaterial>
</a:Archive>

```

8.2 Citation

```

<?xml version="1.0" encoding="UTF-8"?>
<!--
    Example:
-->

    <r:Citation xmlns:ddi="ddi:instance:3_3" xmlns:a="ddi:archive:3_3" xmlns:c=
↪"ddi:conceptualcomponent:3_3" xmlns:cm="ddi:comparative:3_3" xmlns:d=
↪"ddi:datacollection:3_3" xmlns:g="ddi:group:3_3" xmlns:l="ddi:logicalproduct:3_3"
↪xmlns:p="ddi:physicaldataprotuct:3_3" xmlns:pi="ddi:physicalinstance:3_3" xmlns:pr=
↪"ddi:ddiprofile:3_3" xmlns:r="ddi:reusable:3_3" xmlns:s="ddi:studyunit:3_3"
↪xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/"
↪" xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:xsi="http://www.w3.org/2001/
↪XMLSchema-instance" xsi:schemaLocation="ddi:instance:3_3 ../../XMLSchema/instance.
↪xsd">
        <r>Title><r:String>Test Title</r:String></r>Title>
        <dcterms:license>a license here</dcterms:license>
        <dc:creator>name here</dc:creator>
        <dcterms:subject>subject here</dcterms:subject>
    </r:Citation>

```

8.3 Dates

```

<?xml version="1.0" encoding="UTF-8"?>
<!--
    Example - Dates: Simple, complete date range, range with unknown start, range with
↪unknown end
-->

<r:TemporalCoverage xmlns:ddi="ddi:instance:3_3" xmlns:a="ddi:archive:3_3" xmlns:c=
↪"ddi:conceptualcomponent:3_3"
    xmlns:cm="ddi:comparative:3_3" xmlns:d="ddi:datacollection:3_3" xmlns:g=
↪"ddi:group:3_3" xmlns:l="ddi:logicalproduct:3_3"
    xmlns:p="ddi:physicaldataprotuct:3_3" xmlns:pi="ddi:physicalinstance:3_3" xmlns:pr=
↪"ddi:ddiprofile:3_3"
    xmlns:r="ddi:reusable:3_3" xmlns:s="ddi:studyunit:3_3" xmlns:dc="http://purl.org/dc/
↪elements/1.1/"
    xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:xsi="http://www.w3.org/2001/
↪XMLSchema-instance"
    xsi:schemaLocation="ddi:instance:3_3 ../../XMLSchema/instance.xsd">

```

(continues on next page)

```

<r:URN>urn:ddi:us.mpc:TempCov:1</r:URN>

<!-- SimpleDate -->

<r:ReferenceDate>
  <r:SimpleDate>2013-02-26</r:SimpleDate>
  <r:HistoricalDate>
    <r:NonISODate>26 February 2013</r:NonISODate>
    <r:HistoricalDateFormat>dd Month yyyy</r:HistoricalDateFormat>
    <r:Calendar>Gregorian</r:Calendar>
  </r:HistoricalDate>
</r:ReferenceDate>

<!-- Complete Date Range -->

<r:ReferenceDate>
  <r:StartDate>2010-06-05T20:20:00</r:StartDate>
  <r:HistoricalStartDate>
    <r:NonISODate>24 Sivan 2770</r:NonISODate>
    <r:HistoricalDateFormat>dd Month yyyy</r:HistoricalDateFormat>
    <r:Calendar>Jewish</r:Calendar>
  </r:HistoricalStartDate>
  <r:EndDate>2010-08-05T20:20:00</r:EndDate>
  <r:HistoricalEndDate>
    <r:NonISODate>28 Sivan 5770</r:NonISODate>
    <r:HistoricalDateFormat>dd Month yyyy</r:HistoricalDateFormat>
    <r:Calendar>Jewish</r:Calendar>
  </r:HistoricalEndDate>
</r:ReferenceDate>

<!-- Range with unknown start date -->

<r:ReferenceDate>
  <r:EndDate>2013-02-26</r:EndDate>
  <r:HistoricalEndDate>
    <r:NonISODate>February 26, 2013</r:NonISODate>
    <r:HistoricalDateFormat>Month dd, yyyy</r:HistoricalDateFormat>
    <r:Calendar>Gregorian</r:Calendar>
  </r:HistoricalEndDate>
</r:ReferenceDate>

<!-- Range with unknown end date -->

<r:ReferenceDate>
  <r:StartDate>2013-02-26</r:StartDate>
  <r:HistoricalStartDate>
    <r:NonISODate>26 February 2013</r:NonISODate>
    <r:HistoricalDateFormat>dd Month yyyy</r:HistoricalDateFormat>
    <r:Calendar>Gregorian</r:Calendar>
  </r:HistoricalStartDate>
</r:ReferenceDate>

</r:TemporalCoverage>

```

8.4 In / Out Parameter, Binding

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
```

Example - In/Out Parameters and Bindings

This is a very detailed example walking through all the control constructs, questions, dynamic text, and control constructs.

In general usage bindings out parameters and bindings would be noted at the highest discrete level such as the Question Construct for the data captured by a Question Item.

Identification and binding at this level keeps the question reusable across various uses in a questionnaire.

```
-->
```

```
  <g:ResourcePackage xmlns:ddi="ddi:instance:3_3" xmlns:a="ddi:archive:3_3" xmlns:c="
↳ ddi:conceptualcomponent:3_3" xmlns:cm="ddi:comparative:3_3" xmlns:d=
↳ ddi:datacollection:3_3" xmlns:g="ddi:group:3_3" xmlns:l="ddi:logicalproduct:3_3"
      xmlns:p="ddi:physicaldataproperty:3_3" xmlns:pi=
↳ ddi:physicalinstance:3_3" xmlns:pr="ddi:ddiprofile:3_3" xmlns:r="ddi:reusable:3_3"
↳ xmlns:s="ddi:studyunit:3_3" xmlns:dc="http://purl.org/dc/elements/1.1/"
      xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:xsi="http://www.
↳ w3.org/2001/XMLSchema-instance" xsi:schemaLocation="ddi:instance:3_3 ../..
↳ XMLSchema/instance.xsd">
    <r:URN>urn:ddi:us.mpc:ParameterBindingRP:1</r:URN>
    <d:ControlConstructScheme scopeOfUniqueness="Agency" isMaintainable="true">
      <r:URN>urn:ddi:us.mpc:CCScheme:1</r:URN>
      <d:Sequence isVersionable="true" scopeOfUniqueness="Agency">
        <r:URN>urn:ddi:us.mpc:SEQ:1</r:URN>
        <r:Binding>
          <r:SourceParameterReference isReference="true" isExternal="false" lateBound=
↳ "false">
            <r:URN>urn:ddi:us.mpc:QC_OUT_1:1</r:URN>
            <r:TypeOfObject>OutParameter</r:TypeOfObject>
          </r:SourceParameterReference>
          <r:TargetParameterReference isReference="true" isExternal="false" lateBound=
↳ "false">
            <r:URN>urn:ddi:us.mpc:QC_IN_2:1</r:URN>
            <r:TypeOfObject>OutParameter</r:TypeOfObject>
          </r:TargetParameterReference>
        </r:Binding>
        <d:ControlConstructReference isReference="true">
          <r:URN>urn:ddi:us.mpc:QC_1:1</r:URN>
          <r:TypeOfObject>QuestionConstruct</r:TypeOfObject>
        </d:ControlConstructReference>
        <d:ControlConstructReference isReference="true">
          <r:URN>urn:ddi:us.mpc:QC_2:1</r:URN>
          <r:TypeOfObject>QuestionConstruct</r:TypeOfObject>
        </d:ControlConstructReference>
      </d:Sequence>
      <d:QuestionConstruct isVersionable="true" scopeOfUniqueness="Agency">
        <r:URN>urn:ddi:us.mpc:QC_1:1</r:URN>
        <r:OutParameter isIdentifiable="true" scopeOfUniqueness="Agency" isArray=
↳ "false">
          <r:URN>urn:ddi:us.mpc:QC_OUT_1:1</r:URN>
        </r:OutParameter>
      </d:QuestionConstruct>
    </r:Binding>
  </g:ResourcePackage>
```

(continues on next page)

(continued from previous page)

```

    <r:SourceParameterReference isReference="true" isExternal="false" lateBound=
↪ "false">
      <r:URN>urn:ddi:us.mpc:Q1_Name:1</r:URN>
      <r:TypeOfObject>OutParameter</r:TypeOfObject>
    </r:SourceParameterReference>
    <r:TargetParameterReference isReference="true" isExternal="false" lateBound=
↪ "false">
      <r:URN>urn:ddi:us.mpc:QC_OUT_1:1</r:URN>
      <r:TypeOfObject>OutParameter</r:TypeOfObject>
    </r:TargetParameterReference>
  </r:Binding>
  <r:QuestionReference isReference="true" isExternal="false" lateBound="false">
    <r:URN>urn:ddi:us.mpc:Q1:1</r:URN>
    <r:TypeOfObject>QuestionItem</r:TypeOfObject>
  </r:QuestionReference>
</d:QuestionConstruct>
<d:QuestionConstruct isVersionable="true" scopeOfUniqueness="Agency">
  <r:URN>urn:ddi:us.mpc:QC_2:1</r:URN>
  <r:InParameter isIdentifiable="true" scopeOfUniqueness="Agency" isArray="false
↪ ">
    <r:URN>urn:ddi:us.mpc:QC_IN_2:1</r:URN>
  </r:InParameter>
  <r:OutParameter isIdentifiable="true" scopeOfUniqueness="Agency" isArray=
↪ "false">
    <r:URN>urn:ddi:us.mpc:QC_OUT_2:1</r:URN>
  </r:OutParameter>
  <r:Binding>
    <r:SourceParameterReference isReference="true" isExternal="false" lateBound=
↪ "false">
      <r:URN>urn:ddi:us.mpc:QC_IN_2:1</r:URN>
      <r:TypeOfObject>OutParameter</r:TypeOfObject>
    </r:SourceParameterReference>
    <r:TargetParameterReference isReference="true" isExternal="false" lateBound=
↪ "false">
      <r:URN>urn:ddi:us.mpc:Q2_Name:1</r:URN>
      <r:TypeOfObject>OutParameter</r:TypeOfObject>
    </r:TargetParameterReference>
  </r:Binding>
  <r:Binding>
    <r:SourceParameterReference isReference="true" isExternal="false" lateBound=
↪ "false">
      <r:URN>urn:ddi:us.mpc:Q2_Age:1</r:URN>
      <r:TypeOfObject>OutParameter</r:TypeOfObject>
    </r:SourceParameterReference>
    <r:TargetParameterReference isReference="true" isExternal="false" lateBound=
↪ "false">
      <r:URN>urn:ddi:us.mpc:QC_OUT_2:1</r:URN>
      <r:TypeOfObject>OutParameter</r:TypeOfObject>
    </r:TargetParameterReference>
  </r:Binding>
  <r:QuestionReference isReference="true" isExternal="false" lateBound="false">
    <r:URN>urn:ddi:us.mpc:Q2:1</r:URN>
    <r:TypeOfObject>QuestionItem</r:TypeOfObject>
  </r:QuestionReference>
</d:QuestionConstruct>
</d:ControlConstructScheme>
<d:QuestionScheme scopeOfUniqueness="Agency" isMaintainable="true">

```

(continues on next page)

(continued from previous page)

```

<r:URN>urn:ddi:us.mpc:QScheme:1</r:URN>
<d:QuestionItem isVersionable="true" scopeOfUniqueness="Agency">
  <r:URN>urn:ddi:us.mpc:Q1:1</r:URN>
  <r:OutParameter isIdentifiable="true" scopeOfUniqueness="Agency" isArray=
↪ "false">
    <r:URN>urn:ddi:us.mpc:Q1_Name:1</r:URN>
    </r:OutParameter>
    <r:Binding>
      <r:SourceParameterReference isReference="true" isExternal="false" lateBound=
↪ "false">
        <r:URN>urn:ddi:us.mpc:RD_Name:1</r:URN>
        <r:TypeOfObject>OutParameter</r:TypeOfObject>
        </r:SourceParameterReference>
        <r:TargetParameterReference isReference="true" isExternal="false" lateBound=
↪ "false">
          <r:URN>urn:ddi:us.mpc:Q1_Name:1</r:URN>
          <r:TypeOfObject>OutParameter</r:TypeOfObject>
          </r:TargetParameterReference>
        </r:Binding>
        <d:QuestionText>
          <d:LiteralText>
            <d:Text xml:lang="en" xml:space="default">What is the name of your oldest_
↪ child?</d:Text>
          </d:LiteralText>
        </d:QuestionText>
        <d:TextDomainReference isReference="true" isExternal="false" lateBound="false
↪ ">
          <r:URN>urn:ddi:us.mpc:TD_1:1</r:URN>
          <r:TypeOfObject>ManagedTextRepresentation</r:TypeOfObject>
          <r:OutParameter isIdentifiable="true" scopeOfUniqueness="Agency" isArray=
↪ "false">
            <r:URN>urn:ddi:us.mpc:RD_Name:1</r:URN>
            </r:OutParameter>
          </d:TextDomainReference>
        </d:QuestionItem>
        <d:QuestionItem isVersionable="true" scopeOfUniqueness="Agency">
          <r:URN>urn:ddi:us.mpc:Q2:1</r:URN>
          <r:InParameter isIdentifiable="true" scopeOfUniqueness="Agency" isArray="false
↪ ">
            <r:URN>urn:ddi:us.mpc:Q2_Name:1</r:URN>
            </r:InParameter>
            <r:OutParameter isIdentifiable="true" scopeOfUniqueness="Agency" isArray=
↪ "false">
              <r:URN>urn:ddi:us.mpc:Q2_Age:1</r:URN>
              </r:OutParameter>
              <r:Binding>
                <r:SourceParameterReference isReference="true" isExternal="false" lateBound=
↪ "false">
                  <r:URN>urn:ddi:us.mpc:RD_Age:1</r:URN>
                  <r:TypeOfObject>OutParameter</r:TypeOfObject>
                  </r:SourceParameterReference>
                  <r:TargetParameterReference isReference="true" isExternal="false" lateBound=
↪ "false">
                    <r:URN>urn:ddi:us.mpc:Q2_Age:1</r:URN>
                    <r:TypeOfObject>OutParameter</r:TypeOfObject>
                    </r:TargetParameterReference>
                  </r:Binding>

```

(continues on next page)

```

<d:QuestionText>
  <d:LiteralText>
    <d:Text xml:lang="en" xml:space="preserve">How old is </d:Text>
  </d:LiteralText>
  <d:ConditionalText>
    <r:SourceParameterReference isReference="true" isExternal="false"
↳lateBound="false">
      <r:URN>urn:ddi:us.mpc:Q2_Name:1</r:URN>
      <r:TypeOfObject>InParameter</r:TypeOfObject>
    </r:SourceParameterReference>
  </d:ConditionalText>
  <d:LiteralText>
    <d:Text xml:lang="en" xml:space="preserve"> ?</d:Text>
  </d:LiteralText>
</d:QuestionText>
<d:NumericDomainReference>
  <r:URN>urn:ddi:us.mpc:ND_1:1</r:URN>
  <r:TypeOfObject>ManagedNumericRepresentation</r:TypeOfObject>
  <r:OutParameter isIdentifiable="true" scopeOfUniqueness="Agency" isArray=
↳"false">
    <r:URN>urn:ddi:us.mpc:RD_Age:1</r:URN>
  </r:OutParameter>
</d:NumericDomainReference>
</d:QuestionItem>
</d:QuestionScheme>
<l:VariableScheme scopeOfUniqueness="Agency" isMaintainable="true">
  <r:URN>urn:ddi:us.mpc:VarScheme:1</r:URN>
  <l:Variable isVersionable="true" scopeOfUniqueness="Agency">
    <r:URN>urn:ddi:us.mpc:V1:1</r:URN>
    <l:VariableName>
      <r:String xml:lang="en">Age 5 year cohorts</r:String>
    </l:VariableName>
    <r:SourceParameterReference isReference="true" isExternal="false" lateBound=
↳"false">
      <r:URN>urn:ddi:us.mpc:GI_Age_Cohort:1</r:URN>
      <r:TypeOfObject>OutParameter</r:TypeOfObject>
    </r:SourceParameterReference>
  </l:Variable>
</l:VariableScheme>
<d:ProcessingInstructionScheme scopeOfUniqueness="Agency" isMaintainable="true">
  <r:URN>urn:ddi:us.mpc:ProcInstScheme:1</r:URN>
  <d:GenerationInstruction isVersionable="true" scopeOfUniqueness="Agency">
    <r:URN>urn:ddi:us.mpc:GI:1</r:URN>
    <r:CommandCode>
      <r:Command>
        <r:ProgramLanguage>SPSS</r:ProgramLanguage>
        <r:InParameter isIdentifiable="true" scopeOfUniqueness="Agency" isArray=
↳"false">
          <r:URN>urn:ddi:us.mpc:GI_Age:1</r:URN>
          <r:Alias>AGE</r:Alias>
        </r:InParameter>
        <r:OutParameter isIdentifiable="true" scopeOfUniqueness="Agency" isArray=
↳"false">
          <r:URN>urn:ddi:us.mpc:GI_Age_Cohort:1</r:URN>
          <r:Alias>AGE_5</r:Alias>
        </r:OutParameter>
      </r:Command>
    </r:CommandCode>
  </d:GenerationInstruction>
</d:ProcessingInstructionScheme>
</r:Binding>

```

(continues on next page)

(continued from previous page)

```

        <r:SourceParameterReference isReference="true" isExternal="false"
↳lateBound="false">
            <r:URN>urn:ddi:us.mpc:QC_OUT_2:1</r:URN>
            <r:TypeOfObject>OutParameter</r:TypeOfObject>
        </r:SourceParameterReference>
        <r:TargetParameterReference isReference="true" isExternal="false"
↳lateBound="false">
            <r:URN>urn:ddi:us.mpc:GI_Age:1</r:URN>
            <r:TypeOfObject>InParameter</r:TypeOfObject>
        </r:TargetParameterReference>
    </r:Binding>
    <r:CommandContent>If (AGE &lt; 5) AGE_5=1; If (AGE &gt;=5) &
↳(AGE &lt; 10) AGE_5=2; If (AGE &gt;=10 & (AGE &lt; 15) AGE_5=3; If
↳(AGE &gt;=15 & (AGE &lt; 20) AGE_5=4; If (AGE &gt;=20 AGE_5=5</
↳r:CommandContent>
    </r:Command>
</r:CommandCode>
</d:GenerationInstruction>
</d:ProcessingInstructionScheme>
</g:ResourcePackage>

```

8.5 Note

```

<?xml version="1.0" encoding="UTF-8"?>
<!--
  Example - Note Types
-->

  <g:ResourcePackage xmlns:ddi="ddi:instance:3_3" xmlns:a="ddi:archive:3_3" xmlns:c=
↳"ddi:conceptualcomponent:3_3" xmlns:cm="ddi:comparative:3_3" xmlns:d=
↳"ddi:datacollection:3_3" xmlns:g="ddi:group:3_3" xmlns:l="ddi:logicalproduct:3_3"
↳xmlns:p="ddi:physicaldataproperty:3_3" xmlns:pi="ddi:physicalinstance:3_3" xmlns:pr=
↳"ddi:ddiprofile:3_3" xmlns:r="ddi:reusable:3_3" xmlns:s="ddi:studyunit:3_3"
↳xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:xhtml="http://www.w3.org/1999/
↳xhtml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation=
↳"ddi:instance:3_3 ../../XMLSchema/instance.xsd">
    <r:URN>urn:ddi:us.mpc:resourceNotes:1</r:URN>

    <!-- Example 1: Production Process-->

    <r>Note xml:lang="en">
      <r:TypeOfNote>Verification</r:TypeOfNote>
      <r>NoteSubject>Translation.English</r>NoteSubject>
      <r:Relationship>
        <r:RelatedToReference isReference="true" isExternal="false" lateBound="false">
          <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:MS1295:1</r:URN>
          <r:TypeOfObject>Variable</r:TypeOfObject>
        </r:RelatedToReference>
        <r:RelationshipDescription><r:Content xml:lang="en">VariableName verification
↳</r:Content></r:RelationshipDescription>
      </r:Relationship>

      <r:Relationship>
        <r:RelatedToReference isReference="true" isExternal="false" lateBound="false">

```

(continues on next page)

(continued from previous page)

```

    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:MS1295:1</r:URN>
    <r:TypeOfObject>Variable</r:TypeOfObject>
  </r:RelatedToReference>
  <r:RelationshipDescription><r:Content xml:lang="en">VariableName verification
↪</r:Content></r:RelationshipDescription>
</r:Relationship>
<r:Header><r:String xml:lang="en">Translation Question</r:String></r:Header>
<r>NoteContent><r:Content xml:lang="en">The source of this translation was XXX_
↪rather than the standard source. The content of the English translation string_
↪should be verified prior to publication.</r:Content></r>NoteContent>
</r>Note>

<!-- Example 2: Work-around-->

<r>Note xml:lang="en">
  <r:TypeOfNote>WorkAround</r:TypeOfNote>
  <r>NoteSubject>RecordRelationship</r>NoteSubject>
  <r:Relationship>
    <r:RelatedToReference isReference="true" isExternal="false" lateBound="false">
      <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:XB9376:1</r:URN>
      <r:TypeOfObject>RecordRelationship</r:TypeOfObject>
    </r:RelatedToReference>
    <r:RelationshipDescription><r:Content xml:lang="en">Target Source_
↪Clarification</r:Content></r:RelationshipDescription>
  </r:Relationship>
  <r>NoteContent><r:Content xml:lang="en"><xhtml:dl><xhtml:dt>SourceRecordURN</
↪xhtml:dt><xhtml:dd>urn:ddi:us.mpc:LR_1:1</xhtml:dd><xhtml:dt>SourceRecordLinkURN</
↪xhtml:dt><xhtml:dd>urn:ddi:us.mpc:Var_1:1</xhtml:dd><xhtml:dt>TargetRecordURN</
↪xhtml:dt><xhtml:dd>urn:ddi:us.mpc:LR_2:1</xhtml:dd><xhtml:dt>TargetRecordLink</
↪xhtml:dt><xhtml:dd>urn:ddi:us.mpc:Var_2:1</xhtml:dd></xhtml:dl></r:Content></
↪r>NoteContent>
</r>Note>

<!-- Example 3: Proprietary-->

<r>Note>
  <r:Relationship>
    <r:RelatedToReference>
      <r:Agency>int.example</r:Agency>
      <r:ID>Concept1</r:ID>
      <r:Version>1</r:Version>
      <r:TypeOfObject>Concept</r:TypeOfObject>
    </r:RelatedToReference>
  </r:Relationship>
  <r:ProprietaryInfo>
    <r:ProprietaryProperty>
      <r:AttributeKey>CustomProperty1</r:AttributeKey>
      <r:AttributeValue>Custom value 1</r:AttributeValue>
    </r:ProprietaryProperty>
    <r:ProprietaryProperty>
      <r:AttributeKey>CustomProperty2</r:AttributeKey>
      <r:AttributeValue>Custom value 2</r:AttributeValue>
    </r:ProprietaryProperty>
  </r:ProprietaryInfo>
</r>Note>
</g:ResourcePackage>

```

8.6 Quality Statement

```

<?xml version="1.0" encoding="UTF-8"?>
<!--

  Example - Quality declarations in Collection Event, Physical Instance, Archive_
  ↳ Specific, Quality Statement Scheme, and Data Appraisal

-->

  <g:ResourcePackage xmlns:ddi="ddi:instance:3_3" xmlns:a="ddi:archive:3_3" xmlns:c=
  ↳ "ddi:conceptualcomponent:3_3" xmlns:cm="ddi:comparative:3_3" xmlns:d=
  ↳ "ddi:datacollection:3_3" xmlns:g="ddi:group:3_3" xmlns:l="ddi:logicalproduct:3_3"
  ↳ xmlns:p="ddi:physicaldataprotect:3_3" xmlns:pi="ddi:physicalinstance:3_3" xmlns:pr=
  ↳ "ddi:ddiprofile:3_3" xmlns:r="ddi:reusable:3_3" xmlns:s="ddi:studyunit:3_3"
  ↳ xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:xhtml="http://www.w3.org/1999/
  ↳ xhtml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation=
  ↳ "ddi:instance:3_3 ../../XMLSchema/instance.xsd">
    <r:URN>urn:ddi:us.archive:QualResource_1:1</r:URN>

  <!-- Data Collection/ Collection Event/ Quality Statement Reference -->

    <d:DataCollection isMaintainable="true" scopeOfUniqueness="Maintainable">
      <r:URN>urn:ddi:us.archive:DataColl_1:1</r:URN>
      <d:CollectionEvent isIdentifiable="true" scopeOfUniqueness="Maintainable">
        <r:URN>urn:ddi:us.archive:DataColl_1.CE_1:1</r:URN>
        <r:QualityStatementReference isReference="true" isExternal="true" lateBound=
        ↳ "false">
          <r:URN>urn:ddi:us.archive:QScheme_1.QS_2:1</r:URN>
          <r:TypeOfObject>QualityStatement</r:TypeOfObject>
        </r:QualityStatementReference>
      </d:CollectionEvent>
    </d:DataCollection>

  <!-- Physical Instance/ Quality Statement Reference -->

    <pi:PhysicalInstance isMaintainable="true" scopeOfUniqueness="Maintainable">
      <r:URN>urn:ddi:us.archive:PhysInst_1:1</r:URN>
      <r:QualityStatementReference isReference="true" isExternal="true" lateBound=
      ↳ "false">
        <r:URN>urn:ddi:us.archive:QScheme_1.QS_3:1</r:URN>
        <r:TypeOfObject>QualityStatement</r:TypeOfObject>
      </r:QualityStatementReference>
    </pi:PhysicalInstance>

  <!-- Archive/ ArchiveSpecific/ Quality Statement Reference -->

    <a:Archive isMaintainable="true" scopeOfUniqueness="Maintainable">
      <r:URN>urn:ddi:us.archive:Archive_1:1</r:URN>
      <a:ArchiveSpecific>
        <r:QualityStatementReference isReference="true" isExternal="true" lateBound=
        ↳ "false">
          <r:URN>urn:ddi:us.archive:QScheme_1.QS_1:1</r:URN>
          <r:TypeOfObject>QualityStatement</r:TypeOfObject>
        </r:QualityStatementReference>
      </a:ArchiveSpecific>
    </a:Archive>
  
```

(continues on next page)

```

<!-- Quality Statement Scheme -->

<r:QualityScheme isMaintainable="true" scopeOfUniqueness="Maintainable">
  <r:URN>urn:ddi:us.archive:QScheme_1:1</r:URN>
  <r:QualityStatement isVersionable="true" scopeOfUniqueness="Maintainable">
    <r:URN>urn:ddi:us.archive:QScheme_1.QS_1:1</r:URN>
    <r:QualityStandard isVersionable="true" scopeOfUniqueness="Maintainable">
      <r:URN>urn:ddi:us.archive:QScheme_1.QSTD_1:1</r:URN>
      <r:StandardUsed>
        <r:OtherMaterial isVersionable="true" scopeOfUniqueness="Maintainable">
          <r:URN>urn:ddi:us.archive:QScheme_1.Standard_a:1</r:URN>
          <r:TypeOfMaterial>Standard</r:TypeOfMaterial>
          <r:Citation>
            <r>Title><r:String>Reference Model for an Open Archival Information_
↳System (OAIS): Recommended Practice CCSDS 650.0-M-2</r:String></r>Title>
          </r:Citation>
          <r:ExternalURNReference> http://public.ccsds.org/publications/archive/
↳650x0m2.pdf</r:ExternalURNReference>
          </r:OtherMaterial>
        </r:StandardUsed>
      </r:QualityStandard>
      <r:ComplianceStatement><r:Content>The archive complies with the OAIS model_
↳regarding the tracking of information from SIP through data processing and archival_
↳management to the creation of the AIP and assembly of the DIP.</r:Content></
↳r:ComplianceStatement>
    </r:QualityStatement>
  <r:QualityStatement isVersionable="true" scopeOfUniqueness="Maintainable">
    <r:URN>urn:ddi:us.archive:QScheme_1.QS_2:1</r:URN>
    <r:QualityStandard isVersionable="true" scopeOfUniqueness="Maintainable">
      <r:URN>urn:ddi:us.archive:QScheme_1.QSTD_2:1</r:URN>
      <r:StandardUsed>
        <r:OtherMaterial isVersionable="true" scopeOfUniqueness="Maintainable">
          <r:URN>urn:ddi:us.archive:QScheme_1.Standard_b:1</r:URN>
          <r:TypeOfMaterial>Policy</r:TypeOfMaterial>
          <r:Citation>
            <r>Title><r:String>Univerity Of Minnesota Board Of Regents Policy:_
↳Reserch Involving Human Subjects</r:String></r>Title>
          </r:Citation>
          <r:ExternalURNReference>http://www1.umn.edu/regents/policies/academic/
↳HumanSubjects.pdf</r:ExternalURNReference>
          </r:OtherMaterial>
        </r:StandardUsed>
      </r:QualityStandard>
      <r:ComplianceStatement><r:Content>Policy strictly complied to.</r:Content></
↳r:ComplianceStatement>
    </r:QualityStatement>
  <r:QualityStatement isVersionable="true" scopeOfUniqueness="Maintainable">
    <r:URN>urn:ddi:us.archive:QScheme_1.QS_3:1</r:URN>
    <r:OtherStatementOfQuality>
      <r:Content>As data is ported from one format to another, the following_
↳checks are made to verify the accurate transfer of the data items. Record Count and_
↳frequency count on all data items at the category level. A random sample of records_
↳is pulled from each file for item by item comparison. </r:Content>
    </r:OtherStatementOfQuality>
  </r:QualityStatement>
</r:QualityScheme>

```

(continues on next page)

(continued from previous page)

```

<!-- Processing Event Scheme/ Processing Event/ Data Appraisal -->

<d:ProcessingEventScheme isMaintainable="true" scopeOfUniqueness="Maintainable">
  <r:URN>urn:ddi:us.archive:ProcEventSch_1:1</r:URN>
  <d:ProcessingEvent isVersionable="true" scopeOfUniqueness="Maintainable">
    <r:URN>urn:ddi:us.archive:ProcEventSch_1.PE_1:1</r:URN>
    <d>DataAppraisalInformation>
      <d:ResponseRate>
        <d:SampleSize>5000</d:SampleSize>
        <d:NumberOfResponses>3768</d:NumberOfResponses>
        <d:SpecificResponseRate>.7536</d:SpecificResponseRate>
      </d:ResponseRate>
      <d:SamplingError><r:Content><xhtml:div><xhtml:b>Calculation of Standard
↳ Errors <xhtml:br/>Totals and percentages. </xhtml:b> Tables A through C in this
↳ chapter contain the necessary information for calculating the standard errors of
↳ sample estimates in this data product. To calculate the standard error, it is
↳ necessary to know:<xhtml:ul><xhtml:li>The unadjusted standard error for the
↳ characteristic (given in Table A for estimated totals or Table B for estimated
↳ percentages) that would result under a simple random sample design of people,
↳ housing units, households, or families.</xhtml:li><xhtml:li>The design factor for
↳ the particular characteristic estimated (given in Table C) based on the sample
↳ design and estimation techniques employed to produce long form data estimates. </
↳ xhtml:li><xhtml:li>The number of people, housing units, households, or families in
↳ the publication area. </xhtml:li><xhtml:li>The observed sampling rate.</xhtml:li></
↳ xhtml:ul>The design factor is the ratio of the estimated standard error to the
↳ standard error of a simple random sample. The design factors reflect the effects of
↳ the actual sample design and the complex ratio estimation procedure used for Census
↳ 2000.</xhtml:div></r:Content></d:SamplingError>
    </d>DataAppraisalInformation>
  </d:ProcessingEvent>
</d:ProcessingEventScheme>
</g:ResourcePackage>

```

8.7 Questionnaire Development

```

<?xml version="1.0" encoding="UTF-8"?>
<!--

Example - Questionnaire Development

-->

<g:ResourcePackage xmlns:ddi="ddi:instance:3_3" xmlns:a="ddi:archive:3_3" xmlns:c=
↳ "ddi:conceptualcomponent:3_3" xmlns:cm="ddi:comparative:3_3" xmlns:d=
↳ "ddi:datacollection:3_3" xmlns:g="ddi:group:3_3" xmlns:l="ddi:logicalproduct:3_3"
↳ xmlns:p="ddi:physicaldataprotuct:3_3" xmlns:pi="ddi:physicalinstance:3_3" xmlns:pr=
↳ "ddi:ddiprofile:3_3" xmlns:r="ddi:reusable:3_3" xmlns:s="ddi:studyunit:3_3"
↳ xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/"
↳ " xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:xsi="http://www.w3.org/2001/
↳ XMLSchema-instance" xsi:schemaLocation="ddi:instance:3_3 ../XMLSchema/instance.
↳ xsd">
  <r:URN>urn:ddi:us.mpc:RP:1</r:URN>
  <d>DataCollection isMaintainable="true" scopeOfUniqueness="Agency">

```

(continues on next page)

(continued from previous page)

```

<r:URN>urn:ddi:us.mpc:DColl:1</r:URN>
<d:QuestionnaireDevelopment isVersionable="true" scopeOfUniqueness="Agency">
  <r:URN>urn:ddi:us.mpc:QDev:1</r:URN>
  <d:DevelopmentPlan isVersionable="true" scopeOfUniqueness="Agency">
    <r:URN>urn:ddi:us.mpc:DevPlan_1:1</r:URN>
    <d:DevelopmentObjective><r:Content>Validate the consistency of the response_
↳to this question across translations.
    </r:Content></d:DevelopmentObjective>
    <d:DevelopmentObjectReference>
      <r:URN>urn:ddi:us.mpc:Q_1e:1</r:URN>
      <r:TypeOfObject>QuestionItem</r:TypeOfObject>
    </d:DevelopmentObjectReference>
    <d:DevelopmentActivityReference>
      <r:URN>urn:ddi:us.mpc:TransAct_1:1</r:URN>
      <r:TypeOfObject>TranslationActivity</r:TypeOfObject>
    </d:DevelopmentActivityReference>
    <d:DevelopmentActivityReference>
      <r:URN>urn:ddi:us.mpc:ContRev_1:1</r:URN>
      <r:TypeOfObject>ContentReviewActivity</r:TypeOfObject>
    </d:DevelopmentActivityReference>
    <d:DevelopmentActivityReference>
      <r:URN>urn:ddi:us.mpc:CogExp_1:1</r:URN>
      <r:TypeOfObject>CognitiveExpertReviewActivity</r:TypeOfObject>
    </d:DevelopmentActivityReference>
  </d:DevelopmentPlan>
  <d:DevelopmentProcess isVersionable="true" scopeOfUniqueness="Agency">
    <r:URN>urn:ddi:us.mpc:DevProcess_1:1</r:URN>
    <d:DevelopmentPlanReference>
      <r:URN>urn:ddi:us.mpc:DevPlan_1:1</r:URN>
      <r:TypeOfObject>DevelopmentPlan</r:TypeOfObject>
    </d:DevelopmentPlanReference>
    <d:DevelopmentProcessStep isIdentifiable="true" scopeOfUniqueness="Agency">
      <r:URN>urn:ddi:us.mpc:DPStep_1:1</r:URN>
      <d:SuccessorStepReference>
        <r:URN>urn:ddi:us.mpc:DPStep_2:1</r:URN>
        <r:TypeOfObject>DevelopmentProcessStep</r:TypeOfObject>
      </d:SuccessorStepReference>
      <d:DevelopmentObjectReference>
        <r:URN>urn:ddi:us.mpc:Q_1e:1</r:URN>
        <r:TypeOfObject>QuestionItem</r:TypeOfObject>
      </d:DevelopmentObjectReference>
      <d:DevelopmentActivityReference>
        <r:URN>urn:ddi:us.mpc:ContRev_1:1</r:URN>
        <r:TypeOfObject>ContentReviewActivity</r:TypeOfObject>
      </d:DevelopmentActivityReference>
      <d:ConditionForAcceptance><r:Content>Consensus of evaluators that a_
↳consistent response is obtained from the question.</r:Content></
↳d:ConditionForAcceptance>
      <d:ActivityDate>
        <r:StartDate>2013-03-01</r:StartDate>
        <r:EndDate>2013-04-01</r:EndDate>
      </d:ActivityDate>
    </d:DevelopmentProcessStep>
    <d:DevelopmentProcessStep isIdentifiable="true" scopeOfUniqueness="Agency">
      <r:URN>urn:ddi:us.mpc:DPStep_2:1</r:URN>
      <d:PredecessorStepReference>
        <r:URN>urn:ddi:us.mpc:DPStep_1:1</r:URN>

```

(continues on next page)

(continued from previous page)

```

    <r:TypeOfObject>DevelopmentProcessStep</r:TypeOfObject>
  </d:PredecessorStepReference>
  <d:SuccessorStepReference>
    <r:URN>urn:ddi:us.mpc:DPStep_3:1</r:URN>
    <r:TypeOfObject>DevelopmentProcessStep</r:TypeOfObject>
  </d:SuccessorStepReference>
  <d:DevelopmentObjectReference>
    <r:URN>urn:ddi:us.mpc:Q_1e:1</r:URN>
    <r:TypeOfObject>QuestionItem</r:TypeOfObject>
  </d:DevelopmentObjectReference>
  <d:DevelopmentActivityReference>
    <r:URN>urn:ddi:us.mpc:TransAct_1:1</r:URN>
    <r:TypeOfObject>TranslationActivity</r:TypeOfObject>
  </d:DevelopmentActivityReference>
  <d:ConditionForAcceptance><r:Content>Experts statement of completion.</
↔r:Content></d:ConditionForAcceptance>
  <d:ActivityDate>
    <r:StartDate>2013-04-02</r:StartDate>
    <r:EndDate>2013-04-10</r:EndDate>
  </d:ActivityDate>
</d:DevelopmentProcessStep>
<d:DevelopmentProcessStep isIdentifiable="true" scopeOfUniqueness="Agency">
  <r:URN>urn:ddi:us.mpc:DPStep_3:1</r:URN>
  <d:PredecessorStepReference>
    <r:URN>urn:ddi:us.mpc:DPStep_2:1</r:URN>
    <r:TypeOfObject>DevelopmentProcessStep</r:TypeOfObject>
  </d:PredecessorStepReference>
  <d:DevelopmentObjectReference>
    <r:URN>urn:ddi:us.mpc:Q_1e:1</r:URN>
    <r:TypeOfObject>QuestionItem</r:TypeOfObject>
  </d:DevelopmentObjectReference>
  <d:DevelopmentActivityReference>
    <r:URN>urn:ddi:us.mpc:CogExp_1:1</r:URN>
    <r:TypeOfObject>CognitiveExpertReviewActivity</r:TypeOfObject>
  </d:DevelopmentActivityReference>
  <d:ConditionForAcceptance><r:Content>Consensus of evaluators that a
↔consistent response is obtained from the question for each language.</r:Content></
↔d:ConditionForAcceptance>
  <d:ActivityDate>
    <r:StartDate>2013-04-11</r:StartDate>
    <r:EndDate>2013-04-30</r:EndDate>
  </d:ActivityDate>
</d:DevelopmentProcessStep>
</d:DevelopmentProcess>
<d:DevelopmentResults isVersionable="true" scopeOfUniqueness="Agency">
  <r:URN>urn:ddi:us.mpc:DResults_1:1</r:URN>
  <r:Description><r:Content></r:Content></r:Description>
</d:DevelopmentResults>
</d:QuestionnaireDevelopment>
<d:QuestionScheme isMaintainable="true" scopeOfUniqueness="Agency">
  <r:URN>urn:ddi:us.mpc:QScheme:1</r:URN>
  <d:QuestionItem isVersionable="true" scopeOfUniqueness="Agency">
    <r:URN>urn:ddi:us.mpc:Q_1e:1</r:URN>
    <d:QuestionText audienceLanguage="en" isStructureRequired="false">
      <d:LiteralText><d:Text xml:lang="en">What is your name?</d:Text></
↔d:LiteralText>
    </d:QuestionText>
  </d:QuestionItem>
</d:QuestionScheme>

```

(continues on next page)

(continued from previous page)

```

    <d:TextDomain blankIsMissingValue="true" minLength="0" maxLength="50"/>
  </d:QuestionItem>
</d:QuestionScheme>
<d:DevelopmentActivityScheme isMaintainable="true" scopeOfUniqueness="Agency">
  <r:URN>urn:ddi:us.mpc:DevActScheme:1</r:URN>
  <d:ContentReviewActivity isVersionable="true" scopeOfUniqueness="Agency">
    <r:URN>urn:ddi:us.mpc:ContRev_1:1</r:URN>
    <r:Description><r:Content>Evaluation of specific question language and
    ↪ comparability of responses across major cultural groups.</r:Content></r:Description>
    <d:DesiredOutcome><r:Content>Verification that the the content of a
    ↪ question elicits consistent comparable responses.</r:Content></d:DesiredOutcome>
    <d:RecommendedStaffRequirements>
      <d:StaffClass>DevelopmentTeam</d:StaffClass>
      <d:ParticipantRequirements><r:Content>Knowledge of question intent.
    ↪ Knowledge of question testing of various types within major cultural groups.</
    ↪ r:Content></d:ParticipantRequirements>
    </d:RecommendedStaffRequirements>
    <d:TypeOfContentReview>TeamReview</d:TypeOfContentReview>
  </d:ContentReviewActivity>
  <d:CognitiveExpertReviewActivity isVersionable="true" scopeOfUniqueness=
    ↪ "Agency">
    <r:URN>urn:ddi:us.mpc:CogExp_1:1</r:URN>
    <r:Description><r:Content>Evaluation of all question languages and
    ↪ comparability of responses across major cultural groups.</r:Content></r:Description>
    <d:DesiredOutcome><r:Content>Verification that the the content of a
    ↪ question elicits consistent comparable responses.</r:Content></d:DesiredOutcome>
    <d:RecommendedStaffRequirements>
      <d:StaffClass>QualityEvaluator</d:StaffClass>
      <d:ParticipantRequirements><r:Content>Experience with the effect of
    ↪ question wording on response for open ended question types. Knowledge of question
    ↪ testing of various types within major cultural groups.</r:Content>
    </d:ParticipantRequirements>
    </d:RecommendedStaffRequirements>
    <d:TypeOfCognitiveExpertReview>CrossLanguageConsistency</
    ↪ d:TypeOfCognitiveExpertReview>
  </d:CognitiveExpertReviewActivity>
  <d:TranslationActivity isVersionable="true" scopeOfUniqueness="Agency">
    ↪ translationSourceLanguage="en" translationTargetLanguage="de">
    <r:URN>urn:ddi:us.mpc:TransAct_1:1</r:URN>
    <d:TranslationMethod>
      <d:TypeOfTranslationMethod>LiteralTranslation</d:TypeOfTranslationMethod>
    </d:TranslationMethod>
    <d:TranslationRequirements isOral="false" isWritten="true"><r:Content>
    ↪ Accurate translation from source to target language validated by content review.</
    ↪ r:Content></d:TranslationRequirements>
    <d:TranslatorRequirements>
      <d:TranslationSourceLanguageAbility>
        <d:MinimumLanguageAbility>
          <r:Language>English</r:Language>
          <a:Read controlledVocabularyURN="http://careers.state.gov/gateway/
    ↪ lang_prof_def.html">Full Professional Proficiency</a:Read>
          <a:Write controlledVocabularyURN="http://careers.state.gov/gateway/
    ↪ lang_prof_def.html">Full Professional Proficiency</a:Write>
        </d:MinimumLanguageAbility>
        <d:PreferredLanguageAbility>
          <r:Language>English</r:Language>
          <a:Read controlledVocabularyURN="http://careers.state.gov/gateway/
    ↪ lang_prof_def.html">Native or Bilingual Proficiency</a:Read>

```

(continues on next page)

(continued from previous page)

```

        <a:Write controlledVocabularyURN="http://careers.state.gov/gateway/
↪lang_prof_def.html">Native or Bilingual Proficiency</a:Write>
        </d:PreferredLanguageAbility>
    </d:TranslationSourceLanguageAbility>
    <d:TranslationTargetLanguageAbility>
        <d:MinimumLanguageAbility>
            <r:Language>German</r:Language>
            <a:Read controlledVocabularyURN="http://careers.state.gov/gateway/
↪lang_prof_def.html">Full Professional Proficiency</a:Read>
            <a:Write controlledVocabularyURN="http://careers.state.gov/gateway/
↪lang_prof_def.html">Full Professional Proficiency</a:Write>
            </d:MinimumLanguageAbility>
            <d:PreferredLanguageAbility>
                <r:Language>German</r:Language>
                <a:Read controlledVocabularyURN="http://careers.state.gov/gateway/
↪lang_prof_def.html">Native or Bilingual Proficiency</a:Read>
                <a:Write controlledVocabularyURN="http://careers.state.gov/gateway/
↪lang_prof_def.html">Native or Bilingual Proficiency</a:Write>
                </d:PreferredLanguageAbility>
            </d:TranslatorRequirements>
        </d:TranslationActivity>
    </d:DevelopmentActivityScheme>
</d:DataCollection>
</g:ResourcePackage>

```

8.8 Questions

```

<?xml version="1.0" encoding="UTF-8"?>
<!--

    Example - Question Scheme, Question Item, Question Grid, Question Block with
↪related schemes

-->

    <g:ResourcePackage isMaintainable="true" versionDate="2012-09-18"
↪scopeOfUniqueness="Maintainable" xmlns:ddi="ddi:instance:3_3" xmlns:a=
↪"ddi:archive:3_3" xmlns:c="ddi:conceptualcomponent:3_3" xmlns:cm="ddi:comparative:3_
↪3" xmlns:d="ddi:datacollection:3_3" xmlns:g="ddi:group:3_3" xmlns:l=
↪"ddi:logicalproduct:3_3" xmlns:p="ddi:physicaldatapoint:3_3" xmlns:pi=
↪"ddi:physicalinstance:3_3" xmlns:pr="ddi:ddiprofile:3_3" xmlns:r="ddi:reusable:3_3"
↪xmlns:s="ddi:studyunit:3_3" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:xhtml=
↪"http://www.w3.org/1999/xhtml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance
↪" xsi:schemaLocation="ddi:instance:3_3 ../XMLSchema/instance.xsd">
        <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:ResourcePkg_QBlock:1</r:URN>
        <d:QuestionScheme scopeOfUniqueness="Maintainable" isMaintainable="true">
            <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS:1</r:URN>
            <d:QuestionSchemeName><r:String xml:lang="en-us">Questions for PISA</r:String></
↪d:QuestionSchemeName>
            <r:Description><r:Content xml:lang="en-us"></r:Content></r:Description>
            <d:QuestionItem isVersionable="true" scopeOfUniqueness="Maintainable">
                <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS.QI_1:1</r:URN>
                <d:QuestionText><d:LiteralText><d:Text>What is the extract from the play
↪about? The duchess thinks of a trick</d:Text></d:LiteralText></d:QuestionText>

```

(continues on next page)

```

<d:CodeDomain>
  <r:CodeListReference>
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_1:1</r:URN>
    <r:TypeOfObject>CodeList</r:TypeOfObject>
  </r:CodeListReference>
</d:CodeDomain>
  </d:QuestionItem>
  <d:QuestionItem isVersionable="true" scopeOfUniqueness="Maintainable">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS.QI_2:1</r:URN>
    <d:QuestionText><d:LiteralText><d:Text><xhtml:div><xhtml:p>A. In the script
↳ of the play, in addition to the words to be spoken by the actors, there are
↳ directions for the actors and theatre technicians to follow.</xhtml:p><xhtml:p>B.
↳ How can these directions be recognized in the script?</xhtml:p></xhtml:div></d:Text>
↳ </d:LiteralText></d:QuestionText>
    <d:TextDomainReference isReference="true">
      <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:MgdRep.Text_1:1</r:URN>
      <r:TypeOfObject>ManagedTextRepresentation</r:TypeOfObject>
    </d:TextDomainReference>
    </d:QuestionItem>
    <d:QuestionItem isVersionable="true" scopeOfUniqueness="Maintainable">
      <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS.QI_3:1</r:URN>
      <d:QuestionText><d:LiteralText><d:Text><xhtml:div><xhtml:p>The director
↳ positions the actors on the stage. On a diagram, the director represents Amanda
↳ with the letter A and the Duchess with the letter D.</xhtml:p><xhtml:p>Put an A and
↳ a D on the following diagram of the set to show approximately where Amanda and the
↳ Duchess are when the Prince arrives.</xhtml:p></xhtml:div></d:Text></d:LiteralText>
↳ </d:QuestionText>
    <d:LocationDomain>
      <r:Object>Image</r:Object>
      <r:Action>
        <r:RegionOfAction>
          <r:ImageArea>
            <r:Shape>Rectangle</r:Shape>
            <r:Coordinates>[define the coordinate points of the response area]</
↳ r:Coordinates>
          </r:ImageArea>
          </r:RegionOfAction>
          <r>Description><r:Content xml:lang="en-us">Place the letter A within the
↳ defined Image Area</r:Content></r>Description>
        </r:Action>
        <r:Action>
          <r:RegionOfAction>
            <r:ImageArea>
              <r:Shape>Rectangle</r:Shape>
              <r:Coordinates>[define the coordinate points of the response area]</
↳ r:Coordinates>
            </r:ImageArea>
            </r:RegionOfAction>
            <r>Description><r:Content xml:lang="en-us">Place the letter D within the
↳ defined Image Area</r:Content></r>Description>
          </r:Action>
        </d:LocationDomain>
      <d:ExternalAid>
        <r:OtherMaterial isVersionable="true" scopeOfUniqueness="Maintainable">
          <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS.EXT_1:1</
↳ r:URN>
          <r:TypeOfMaterial>Image</r:TypeOfMaterial>

```

(continues on next page)

(continued from previous page)

```

        <r:ExternalURNReference>stageimage.pdf</r:ExternalURNReference>
    </r:OtherMaterial>
</d:ExternalAid>
    </d:QuestionItem>
    <d:QuestionItem isVersionable="true" scopeOfUniqueness="Maintainable">
        <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS.QI_4:1</r:URN>
        <d:QuestionText><d:LiteralText><d:Text>Towards the end of the extract from
↳the play, Amanda says, "He didn't recognise me...". What does she mean by that?</
↳d:Text></d:LiteralText></d:QuestionText>
        <d:CodeDomain>
            <r:CodeListReference>
                <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_3:1</r:URN>
                <r:TypeOfObject>CodeList</r:TypeOfObject>
            </r:CodeListReference>
        </d:CodeDomain>
        </d:QuestionItem>
        <d:QuestionGrid isVersionable="true" scopeOfUniqueness="Maintainable">
            <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS.QG_1:1</r:URN>
            <d:QuestionText><d:LiteralText><d:Text>The table below lists theatre
↳technicians involved in staging this extract from Locadia. Complete the table by
↳indicating one stage direction from Text 1 which would require the involvement of
↳each technician. The first one has been done for you.</d:Text></d:LiteralText></
↳d:QuestionText>
            <d:GridDimension rank="1" displayCode="false" displayLabel="true">
                <d:CodeDomain>
                    <r:CodeListReference>
                        <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_2:1</r:URN>
                        <r:TypeOfObject>CodeList</r:TypeOfObject>
                    </r:CodeListReference>
                </d:CodeDomain>
            </d:GridDimension>
            <d:GridDimension rank="2">
                <d:Roster baseCodeValue="1" minimumRequired="1" maximumAllowed="1"
↳codeIterationValue="1">
                    <r:Label><r:Content xml:lang="en-us">Stage direction</r:Content></
↳r:Label>
                </d:Roster>
            </d:GridDimension>
            <d:StructuredMixedGridResponseDomain>
                <d:NoDataByDefinition>
                    </d:NoDataByDefinition>
                <d:GridResponseDomainInMixed>
                    <d:TextDomainReference isReference="true">
                        <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:MgdRep.Text_1:1</
↳r:URN>
                    <r:TypeOfObject>ManagedTextRepresentation</r:TypeOfObject>
                </d:TextDomainReference>
                <d:GridAttachment>
                    <d:CellCoordinatesAsDefined>
                        <d>SelectDimension rank="1" rangeMinimum="2" rangeMaximum="4"/>
                        <d>SelectDimension rank="2" allValues="true"/>
                    </d:CellCoordinatesAsDefined>
                </d:GridAttachment>
            </d:GridResponseDomainInMixed>
        </d:StructuredMixedGridResponseDomain>
        <d:CellLabel>
            <r:Content xml:lang="en-us">A circular bench around a small obelisk</
↳r:Content>

```

(continues on next page)

(continued from previous page)

```

    <d:GridAttachment>
      <d:SpecificCellCoordinate>1,1</d:SpecificCellCoordinate>
    </d:GridAttachment>
  </d:CellLabel>
  </d:QuestionGrid>
  <d:QuestionBlock isVersionable="true" scopeOfUniqueness="Maintainable">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS.QB_1:1</r:URN>
  <d:StimulusMaterial>
    <r:OtherMaterial isVersionable="true" scopeOfUniqueness="Maintainable">
      <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS.Eval_1:1</
↪r:URN>
      <r:TypeOfMaterial>Image</r:TypeOfMaterial>
      <r:ExternalURNReference>ScriptText1.pdf</r:ExternalURNReference>
    </r:OtherMaterial>
  </d:StimulusMaterial>
  <d:StimulusMaterial>
    <r:OtherMaterial isVersionable="true" scopeOfUniqueness="Maintainable">
      <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS.Eval_2:1</
↪r:URN>
      <r:TypeOfMaterial>Image</r:TypeOfMaterial>
      <r:ExternalURNReference>ScriptText2.pdf</r:ExternalURNReference>
    </r:OtherMaterial>
  </d:StimulusMaterial>
  <d:QuestionItemReference>
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS.QI_1:1</r:URN>
    <r:TypeOfObject>QuestionItem</r:TypeOfObject>
  </d:QuestionItemReference>
  <d:QuestionItemReference>
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS.QI_2:1</r:URN>
    <r:TypeOfObject>QuestionItem</r:TypeOfObject>
  </d:QuestionItemReference>
  <d:QuestionItemReference>
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS.QG_1:1</r:URN>
    <r:TypeOfObject>QuestionItem</r:TypeOfObject>
  </d:QuestionItemReference>
  <d:QuestionItemReference>
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS.QI_3:1</r:URN>
    <r:TypeOfObject>QuestionItem</r:TypeOfObject>
  </d:QuestionItemReference>
  <d:QuestionItemReference>
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_QS.QI_4:1</r:URN>
    <r:TypeOfObject>QuestionItem</r:TypeOfObject>
  </d:QuestionItemReference>
  </d:QuestionBlock>
</d:QuestionScheme>
<l:CategoryScheme scopeOfUniqueness="Maintainable" isMaintainable="true">
  <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_1:1</r:URN>
  <l:CategorySchemeName><r:String xml:lang="en-us">Trick</r:String></
↪l:CategorySchemeName>
  <l:Category isVersionable="true" scopeOfUniqueness="Maintainable">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_1.Cat_1:1</
↪r:URN>
    <l:CategoryName><r:String xml:lang="en-us">Attract Prince</r:String></
↪l:CategoryName>
    <r:Label><r:Content xml:lang="en-us">to get the Prince to come and see_
↪her more often.</r:Content></r:Label>
  </l:Category>

```

(continues on next page)

(continued from previous page)

```

<l:Category isVersionable="true" scopeOfUniqueness="Maintainable">
  <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_1.Cat_2:1</
↪r:URN>
  <l:CategoryName><r:String xml:lang="en-us">Prince Decision</r:String></
↪l:CategoryName>
  <r:Label><r:Content xml:lang="en-us">to get the Prince to make up his_
↪mind finally to get married</r:Content></r:Label>
</l:Category>
<l:Category isVersionable="true" scopeOfUniqueness="Maintainable">
  <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_1.Cat_3:1</
↪r:URN>
  <l:CategoryName><r:String xml:lang="en-us">Amanda Influence</r:String></
↪l:CategoryName>
  <r:Label><r:Content xml:lang="en-us">to get Amanda to make the Prince_
↪forget his grief.</r:Content></r:Label>
</l:Category>
<l:Category isVersionable="true" scopeOfUniqueness="Maintainable">
  <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_1.Cat_4:1</
↪r:URN>
  <l:CategoryName><r:String xml:lang="en-us">Amanda move to castle</r:String></
↪l:CategoryName>
  <r:Label><r:Content xml:lang="en-us">to get Amanda to come and live at_
↪the castle with her.</r:Content></r:Label>
</l:Category>
</l:CategoryScheme>
<l:CategoryScheme scopeOfUniqueness="Maintainable" isMaintainable="true">
  <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_2:1</r:URN>
  <l:CategorySchemeName><r:String xml:lang="en-us">Theatre technicians</r:String>
↪</l:CategorySchemeName>
  <l:Category isVersionable="true" scopeOfUniqueness="Maintainable">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_2.Cat_1:1</
↪r:URN>
    <l:CategoryName><r:String xml:lang="en-us">Set designer</r:String></
↪l:CategoryName>
    <r:Label><r:Content xml:lang="en-us">Set designer</r:Content></r:Label>
  </l:Category>
  <l:Category isVersionable="true" scopeOfUniqueness="Maintainable">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_2.Cat_2:1</
↪r:URN>
    <l:CategoryName><r:String xml:lang="en-us">Props manager</r:String></
↪l:CategoryName>
    <r:Label><r:Content xml:lang="en-us">Props manager</r:Content></r:Label>
  </l:Category>
  <l:Category isVersionable="true" scopeOfUniqueness="Maintainable">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_2.Cat_3:1</
↪r:URN>
    <l:CategoryName><r:String xml:lang="en-us">Sound technician</r:String></
↪l:CategoryName>
    <r:Label><r:Content xml:lang="en-us">Sound technician</r:Content></
↪r:Label>
  </l:Category>
  <l:Category isVersionable="true" scopeOfUniqueness="Maintainable">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_2.Cat_4:1</
↪r:URN>
    <l:CategoryName><r:String xml:lang="en-us">Lighting technician</r:String></
↪l:CategoryName>
    <r:Label><r:Content xml:lang="en-us">Lighting technician</r:Content></
↪r:Label>

```

(continues on next page)

(continued from previous page)

```

    </l:Category>
  </l:CategoryScheme>
  <l:CategoryScheme scopeOfUniqueness="Maintainable" isMaintainable="true">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_3:1</r:URN>
    <l:CategorySchemeName><r:String xml:lang="en-us">Amanda intent</r:String></
  </l:CategorySchemeName>
    <l:Category isVersionable="true" scopeOfUniqueness="Maintainable">
      <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_3.Cat_1:1</
  </r:URN>
      <l:CategoryName><r:String xml:lang="en-us">Didn't look</r:String></
  </l:CategoryName>
      <r:Label><r:Content xml:lang="en-us">That the Prince didn't look at_
  </r:Content></r:Label>
      </l:Category>
      <l:Category isVersionable="true" scopeOfUniqueness="Maintainable">
        <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_3.Cat_2:1</
  </r:URN>
        <l:CategoryName><r:String xml:lang="en-us">Didn't recognize status</r:String>
  </l:CategoryName>
        <r:Label><r:Content xml:lang="en-us">That the Prince didn't realise_
  </r:Content></r:Label>
        </l:Category>
        <l:Category isVersionable="true" scopeOfUniqueness="Maintainable">
          <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_3.Cat_3:1</
  </r:URN>
          <l:CategoryName><r:String xml:lang="en-us">Didn't recognize past meeting</
  </r:String></l:CategoryName>
          <r:Label><r:Content xml:lang="en-us">That the Prince didn't realise_
  </r:Content></r:Label>
          </l:Category>
          <l:Category isVersionable="true" scopeOfUniqueness="Maintainable">
            <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_3.Cat_4:1</
  </r:URN>
            <l:CategoryName><r:String xml:lang="en-us">Didn't see resemblance</r:String></
  </l:CategoryName>
            <r:Label><r:Content xml:lang="en-us">That the Prince didn't notice that_
  </r:Content></r:Label>
            </l:Category>
          </l:CategoryScheme>
          <l:CodeListScheme scopeOfUniqueness="Maintainable" isMaintainable="true">
            <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CodeS_QBlock:1</r:URN>
            <l:CodeListSchemeName><r:String xml:lang="en-us">Code Lists for PISA</r:String>
  </l:CodeListSchemeName>
            <l:CodeList scopeOfUniqueness="Maintainable" isMaintainable="true">
              <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_1:1</r:URN>
              <r:RecommendedDataType>Character</r:RecommendedDataType>
              <r:CategorySchemeReference>
                <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_1:1</r:URN>
                <r:TypeOfObject>CategoryScheme</r:TypeOfObject>
              </r:CategorySchemeReference>
              <l:Code isDiscrete="true" scopeOfUniqueness="Maintainable" isIdentifiable=
  </r:true">
                <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_1.C_1:1</r:URN>
                <r:CategoryReference>
                  <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_1.Cat_1:1</
  </r:URN>
                  <r:TypeOfObject>Category</r:TypeOfObject>

```

(continues on next page)

(continued from previous page)

```

        </r:CategoryReference>
        <r:Value>A</r:Value>
    </l:Code>
    <l:Code isDiscrete="true" scopeOfUniqueness="Maintainable" isIdentifiable=
↪ "true">
        <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_1.C_2:1</r:URN>
        <r:CategoryReference>
            <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_1.Cat_2:1</
↪ r:URN>
            <r:TypeOfObject>Category</r:TypeOfObject>
        </r:CategoryReference>
        <r:Value>B</r:Value>
    </l:Code>
    <l:Code isDiscrete="true" scopeOfUniqueness="Maintainable" isIdentifiable=
↪ "true">
        <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_1.C_3:1</r:URN>
        <r:CategoryReference>
            <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_1.Cat_3:1</
↪ r:URN>
            <r:TypeOfObject>Category</r:TypeOfObject>
        </r:CategoryReference>
        <r:Value>C</r:Value>
    </l:Code>
    <l:Code isDiscrete="true" scopeOfUniqueness="Maintainable" isIdentifiable=
↪ "true">
        <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_1.C_4:1</r:URN>
        <r:CategoryReference>
            <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_1.Cat_4:1</
↪ r:URN>
            <r:TypeOfObject>Category</r:TypeOfObject>
        </r:CategoryReference>
        <r:Value>D</r:Value>
    </l:Code>
</l:CodeList>
<l:CodeList scopeOfUniqueness="Maintainable" isMaintainable="true">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_2:1</r:URN>
        <r:Label><r:Content xml:lang="en-us">Theatre technicians</r:Content></
↪ r:Label>
        <r:RecommendedDataType>Integer</r:RecommendedDataType>
        <r:CategorySchemeReference>
            <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_2:1</r:URN>
            <r:TypeOfObject>CategoryScheme</r:TypeOfObject>
        </r:CategorySchemeReference>
        <l:Code isDiscrete="true" scopeOfUniqueness="Maintainable" isIdentifiable=
↪ "true">
            <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_2.C_1:1</r:URN>
            <r:CategoryReference>
                <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_2.Cat_1:1</
↪ r:URN>
                <r:TypeOfObject>Category</r:TypeOfObject>
            </r:CategoryReference>
            <r:Value>1</r:Value>
        </l:Code>
        <l:Code isDiscrete="true" scopeOfUniqueness="Maintainable" isIdentifiable=
↪ "true">
            <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_2.C_2:1</r:URN>
            <r:CategoryReference>

```

(continues on next page)

(continued from previous page)

```

        <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_2.Cat_2:1</
↔r:URN>
        <r:TypeOfObject>Category</r:TypeOfObject>
        </r:CategoryReference>
        <r:Value>2</r:Value>
        </l:Code>
        <l:Code isDiscrete="true" scopeOfUniqueness="Maintainable" isIdentifiable=
↔"true">
        <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_2.C_3:1</r:URN>
        <r:CategoryReference>
        <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_2.Cat_3:1</
↔r:URN>
        <r:TypeOfObject>Category</r:TypeOfObject>
        </r:CategoryReference>
        <r:Value>3</r:Value>
        </l:Code>
        <l:Code isDiscrete="true" scopeOfUniqueness="Maintainable" isIdentifiable=
↔"true">
        <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_2.C_4:1</r:URN>
        <r:CategoryReference>
        <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_2.Cat_4:1</
↔r:URN>
        <r:TypeOfObject>Category</r:TypeOfObject>
        </r:CategoryReference>
        <r:Value>4</r:Value>
        </l:Code>
        </l:CodeList>
        <l:CodeList scopeOfUniqueness="Maintainable" isMaintainable="true">
        <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_3:1</r:URN>
        <r:RecommendedDataType>Character</r:RecommendedDataType>
        <r:CategorySchemeReference>
        <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_3:1</r:URN>
        <r:TypeOfObject>CategoryScheme</r:TypeOfObject>
        </r:CategorySchemeReference>
        <l:Code isDiscrete="true" scopeOfUniqueness="Maintainable" isIdentifiable=
↔"true">
        <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_3.C_1:1</r:URN>
        <r:CategoryReference>
        <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_3.Cat_1:1</
↔r:URN>
        <r:TypeOfObject>Category</r:TypeOfObject>
        </r:CategoryReference>
        <r:Value>A</r:Value>
        </l:Code>
        <l:Code isDiscrete="true" scopeOfUniqueness="Maintainable" isIdentifiable=
↔"true">
        <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_3.C_2:1</r:URN>
        <r:CategoryReference>
        <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_3.Cat_2:1</
↔r:URN>
        <r:TypeOfObject>Category</r:TypeOfObject>
        </r:CategoryReference>
        <r:Value>B</r:Value>
        </l:Code>
        <l:Code isDiscrete="true" scopeOfUniqueness="Maintainable" isIdentifiable=
↔"true">
        <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_3.C_3:1</r:URN>

```

(continues on next page)

(continued from previous page)

```

    <r:CategoryReference>
      <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_3.Cat_3:1</r:URN>
    </r:CategoryReference>
    <r:TypeOfObject>Category</r:TypeOfObject>
  </r:CategoryReference>
  <r:Value>C</r:Value>
</l:Code>
<l:Code isDiscrete="true" scopeOfUniqueness="Maintainable" isIdentifiable=
  "true">
    <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:PISA_CL_3.C_4:1</r:URN>
    <r:CategoryReference>
      <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:CS_PISA_3.Cat_4:1</r:URN>
    </r:CategoryReference>
    <r:TypeOfObject>Category</r:TypeOfObject>
  </r:CategoryReference>
  <r:Value>D</r:Value>
</l:Code>
</l:CodeList>
</l:CodeListScheme>
<r:ManagedRepresentationScheme scopeOfUniqueness="Maintainable" isMaintainable=
  "true">
  <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:MgdRep:1</r:URN>
  <r:ManagedTextRepresentation isVersionable="true" scopeOfUniqueness=
    "Maintainable" maxLength="250">
    <r:URN typeIdentifier="Canonical">urn:ddi:us.mpc:MgdRep.Text_1:1</r:URN>
    <r:ManagedTextRepresentationName><r:String xml:lang="en-us">0 min to 250 max
length response.</r:String></r:ManagedTextRepresentationName>
  </r:ManagedTextRepresentation>
</r:ManagedRepresentationScheme>
</g:ResourcePackage>

```

8.9 Representations

```

<?xml version="1.0" encoding="UTF-8"?>
<!--
  Example - Representations
-->
  <g:ResourcePackage xmlns:ddi="ddi:instance:3_3" xmlns:a="ddi:archive:3_3" xmlns:c=
    "ddi:conceptualcomponent:3_3" xmlns:cm="ddi:comparative:3_3" xmlns:d=
    "ddi:datacollection:3_3" xmlns:g="ddi:group:3_3" xmlns:l="ddi:logicalproduct:3_3"
    xmlns:p="ddi:physicaldatapduct:3_3" xmlns:pi="ddi:physicalinstance:3_3" xmlns:pr=
    "ddi:ddiprofile:3_3" xmlns:r="ddi:reusable:3_3" xmlns:s="ddi:studyunit:3_3"
    xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:xhtml="http://www.w3.org/1999/
    xhtml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation=
    "ddi:instance:3_3 ../XMLSchema/instance.xsd">
    <r:URN>urn:ddi:us.mpc:RepresentationRP:1</r:URN>
    <d:QuestionScheme>
      <r:URN>urn:ddi:us.mpc:QuestionScheme:1</r:URN>
    </d:QuestionScheme>
  </g:ResourcePackage>
<!-- Category Representation -->

```

(continues on next page)

(continued from previous page)

```

<d:QuestionItem>
  <r:URN>urn:ddi:us.mpc:QICatRep:1</r:URN>
  <d:CategoryDomain>
    <r:CategorySchemeReference isExternal="false" isReference="true" lateBound=
↪ "false" lateBoundRestriction="0" objectLanguage="en-US">
      <r:URN type="URN" typeOfIdentifier="Canonical">urn:ddi:us.mpc:PRES2000:1.0
↪ </r:URN>
      <r:TypeOfObject>CategoryScheme</r:TypeOfObject>
      <r:Exclude isExternal="false" externalReferenceDefaultURI="URI"
↪ isReference="true" lateBound="false" lateBoundRestriction="0" objectLanguage="en-US
↪ " sourceContext="URI">
        <r:URN type="URN" typeOfIdentifier="Canonical">urn:ddi:us.mpc:PRES2000_
↪ 1:1.0</r:URN>
        <r:TypeOfObject>Category</r:TypeOfObject>
      </r:Exclude>
      <r:Exclude isExternal="false" externalReferenceDefaultURI="URI"
↪ isReference="true" lateBound="false" lateBoundRestriction="0" objectLanguage="en-US
↪ " sourceContext="URI">
        <r:URN type="URN" typeOfIdentifier="Canonical">urn:ddi:us.mpc:PRES2000_
↪ 2:1.0</r:URN>
        <r:TypeOfObject>Category</r:TypeOfObject>
      </r:Exclude>
    </r:CategorySchemeReference>
  </d:CategoryDomain>
</d:QuestionItem>

<!-- Distribution Representation expressed as a ResponseDomain -->

<d:QuestionItem>
  <r:URN>urn:ddi:us.mpc:QIDistDel_1:1</r:URN>
  <d:DistributionDomain decimalPositions="1">
    <r:DistributionValue>100</r:DistributionValue>
  </d:DistributionDomain>
</d:QuestionItem>

<!-- Geographic Representation expressed as a ResponseDomain -->

<d:QuestionItem>
  <r:URN>urn:ddi:us.mpc:QIGPS_1:1</r:URN>
  <d:GeographicDomain pointFormat="DecimalDegree" spatialPrimitive="Point">
    <r:Datum>NAD83</r:Datum>
    <r:CoordinateSystem>SPCS</r:CoordinateSystem>
    <r:CoordinateZone>2203</r:CoordinateZone>
    <r:CoordinateSource>GPS</r:CoordinateSource>
    <r>ErrorCorrection>WAAS</r>ErrorCorrection>
    <r:Offset>0</r:Offset>
    <r:GeoreferencedObject>Residential Front Door</r:GeoreferencedObject>
    <r:CoordinatePairs maxArray="2" arraySeparator="|"/>
    <r:AlternateOffset maxLength="15"/>
    <r:AlternateCoordinateSystem maxLength="25"/>
  </d:GeographicDomain>
</d:QuestionItem>

<!-- Location Representation expressed as a ResponseDomain -->

<d:QuestionItem>

```

(continues on next page)

(continued from previous page)

```

<r:URN>urn:ddi:us.mpc:QILocDel_1:2</r:URN>
<d:LocationDomain>
  <r:Object>Image</r:Object>
  <r:Action regExp="[Dd]">
    <r:RegionOfAction>
      <r:ImageArea>
        <r:Shape>Rectangle</r:Shape>
        <r:Coordinates>5,-5 5,-2 2,-2 2,-5</r:Coordinates>
      </r:ImageArea>
    </r:RegionOfAction>
    <r:Description>
      <r:Content xml:lang="en">Mark the letter D (upper or lower case
↳accepted) in the upper left (3x3) section of the 10x10 gridded image.</r:Content>
    </r:Description>
  </r:Action>
</d:LocationDomain>
</d:QuestionItem>

<!-- Ranking Representation expressed as a ResponseDomain -->

<d:QuestionItem>
  <r:URN>urn:ddi:us.mpc:QIRankDel_1:1</r:URN>
  <d:RankingDomain>
    <r:RankingRange maximumRepetitionOfSingleValue="1">
      <r:RangeUnit>Integer</r:RangeUnit>
      <r:MinimumValue included="true">1</r:MinimumValue>
      <r:MaximumValue included="true">5</r:MaximumValue>
    </r:RankingRange>
  </d:RankingDomain>
</d:QuestionItem>

<!-- Nominal Representation expressed as a ResponseDomain -->

<d:QuestionGrid>
  <r:URN>urn:ddi:us.mpc:QGNomDel_1:2</r:URN>
  <d:NominalDomain regExp="[Xx]"/>
</d:QuestionGrid>
</d:QuestionScheme>

<l:VariableScheme>
  <r:URN>urn:ddi:us.mpc:VarScheme:1</r:URN>

  <!-- Geographic Location Code Representation US counties excepting Alaska and
↳Hawaii-->

  <l:Variable>
    <r:URN>urn:ddi:us.mpc:VarGeoLoc:1</r:URN>
    <l:VariableRepresentation>
      <r:GeographicLocationCodeRepresentation>
        <r:RecommendedDataType>String</r:RecommendedDataType>
        <r:IncludedGeographicLocationCodes>
          <r:AuthorizedSourceReference isReference="true" isExternal="true"
↳lateBound="false">
            <r:URN>urn:ddi:us.mpc:FIPS:1.0</r:URN>
            <r:TypeOfObject>AuthorizedSource</r:TypeOfObject>
          </r:AuthorizedSourceReference>
          <r:GeographicLocationReference isReference="true" isExternal="true"
↳lateBound="false">

```

(continues on next page)

(continued from previous page)

```

        <r:URN>urn:ddi:us.mpc:CNTY:1.0</r:URN>
        <r:TypeOfObject>GeographicLocation</r:TypeOfObject>
    </r:GeographicLocationReference>
    <r:ExcludedLocationValueReference isReference="true" isExternal="true"
↳lateBound="false">
        <r:URN>urn:ddi:us.mpc:ALASKA_CNTY:1.0</r:URN>
        <r:TypeOfObject>LocationValue</r:TypeOfObject>
    </r:ExcludedLocationValueReference>
    <r:ExcludedLocationValueReference isReference="true" isExternal="true"
↳lateBound="false">
        <r:URN>urn:ddi:us.mpc:HAWAII_CNTY:1.0</r:URN>
        <r:TypeOfObject>LocationValue</r:TypeOfObject>
    </r:ExcludedLocationValueReference>
    </r:IncludedGeographicLocationCodes>
</r:GeographicLocationCodeRepresentation>
</l:VariableRepresentation>
</l:Variable>

    <!-- Geographic Structure Code Representation including US, Regions, and
↳Divisions -->

    <l:Variable>
        <r:URN>urn:ddi:us.mpc:VarGeoStruc:1</r:URN>
    <l:VariableRepresentation>
        <r:GeographicStructureCodeRepresentation>
            <r:IncludedGeographicStructureCodes>
                <r:AuthorizedSourceReference isReference="true" isExternal="true"
↳lateBound="false">
                    <r:URN>urn:ddi:us.mpc:US_Census:1.0</r:URN>
                    <r:TypeOfObject>AuthorizedSource</r:TypeOfObject>
                </r:AuthorizedSourceReference>
                <r:GeographicStructureReference isReference="true" isExternal="true"
↳lateBound="false">
                    <r:URN>urn:ddi:us.mpc:US_1990:1.0</r:URN>
                    <r:TypeOfObject>GeographicStructure</r:TypeOfObject>
                </r:GeographicStructureReference>
                <r:ExcludedGeographicLevelReference isReference="true" isExternal="true
↳" lateBound="false">
                    <r:URN>urn:ddi:us.mpc:REGION:1.0</r:URN>
                    <r:TypeOfObject>GeographicLevel</r:TypeOfObject>
                </r:ExcludedGeographicLevelReference>
                <r:ExcludedGeographicLevelReference isReference="true" isExternal="true
↳" lateBound="false">
                    <r:URN>urn:ddi:us.mpc:DIVISION:1.0</r:URN>
                    <r:TypeOfObject>GeographicLevel</r:TypeOfObject>
                </r:ExcludedGeographicLevelReference>
            </r:IncludedGeographicStructureCodes>
        </r:GeographicStructureCodeRepresentation>
    </l:VariableRepresentation>
</l:Variable>

    <!-- Code Representation including Industrial Classifications (SIC) -->

    <l:Variable>
        <r:URN>urn:ddi:us.mpc:VarCode:1</r:URN>
    <l:VariableRepresentation>
        <r:CodeRepresentation classificationLevel="Nominal">

```

(continues on next page)

(continued from previous page)

```

<r:RecommendedDataType>String</r:RecommendedDataType>
<r:CodeListReference isReference="true" isExternal="true" lateBound="false
↳">
  <r:URN>urn:ddi:us.mpc:SIC:1.0</r:URN>
  <r:TypeOfObject>CodeList</r:TypeOfObject>
</r:CodeListReference>
<r:CodeSubsetInformation>
  <r>DataExistence>
    <r:DiscreteCategory>true</r:DiscreteCategory>
  </r>DataExistence>
</r:CodeSubsetInformation>
</r:CodeRepresentation>
</l:VariableRepresentation>
</l:Variable>
</l:VariableScheme>

<r:ManagedRepresentationScheme>
  <r:URN>urn:ddi:us.mpc:mrs:1</r:URN>

  <!-- Date Time Representation -->

  <r:ManagedDateTimeRepresentation regexp="[0-9]{2}/[0-9]{4}">
    <r:URN>urn:ddi:us.mpc:DateTime:1</r:URN>
    <r:DateFieldFormat>MM/YYYY</r:DateFieldFormat>
    <r:DateTypeCode>gYearMonth</r:DateTypeCode>
  </r:ManagedDateTimeRepresentation>

  <!-- Numeric Representation -->

  <r:ManagedNumericRepresentation isVersionable="true" scopeOfUniqueness="Agency"
↳scale="1" decimalPositions="0" interval="1">
    <r:URN>urn:ddi:us.mpc:NumRange_1_10:1</r:URN>
    <r:ManagedNumericRepresentationName>
      <r:String xml:lang="en">Range 1-10+</r:String>
    </r:ManagedNumericRepresentationName>
    <r:Label>
      <r:Content xml:lang="en">Number Range covering 1 through 10 plus</r:Content>
    </r:Label>
    <r:Description>
      <r:Content xml:lang="en">Defines the allowed content for a number range of
↳1 - 10 where 10 is topcoded to imply 10 or more</r:Content>
    </r:Description>
    <r:NumberRange>
      <r:Low isInclusive="true">1</r:Low>
      <r:High isInclusive="true">10</r:High>
      <r:TopCode>10</r:TopCode>
    </r:NumberRange>
    <r:NumericTypeCode>Integer</r:NumericTypeCode>
  </r:ManagedNumericRepresentation>

  <!-- Text Representation -->

  <r:ManagedTextRepresentation isVersionable="true" scopeOfUniqueness="Agency"
↳minLength="5" maxLength="5" regexp="[0-9]{5}">
    <r:URN>urn:ddi:us.icpsr:TD_1:1</r:URN>
    <r:ManagedTextRepresentationName isPreferred="true">
      <r:String xml:lang="en">ZIPCode</r:String>

```

(continues on next page)

```

</r:ManagedTextRepresentationName>
<r:Label>
  <r:Content xml:lang="en">United States 5-digit ZIP Code</r:Content>
</r:Label>
<r:Description>
  <r:Content xml:lang="en">The 5-digit ZIP Code used by the United States_
↪Postal Service for mail delivery.</r:Content>
</r:Description>
</r:ManagedTextRepresentation>

<!-- Scale Representation (1) -->

<r:ManagedScaleRepresentation isVersionable="true" scopeOfUniqueness=
↪"Maintainable">
  <r:URN>urn:ddi:us.mpc:ScaleRepresentationScheme_1.ScaleRepresentation_1:1</
↪r:URN>
  <r:ManagedScaleRepresentationName>
    <r:String xml:lang="en">Simple ScaleRepresentation</r:String>
  </r:ManagedScaleRepresentationName>
  <r:Label>
    <r:Content xml:lang="en">Simple ScaleRepresentation</r:Content>
  </r:Label>
  <r:Description>
    <r:Content xml:lang="en">Example 1</r:Content>
  </r:Description>
  <r:ScaleDimension>
    <r:NumberRange>
      <r:Low isInclusive="true">0</r:Low>
      <r:High isInclusive="true">10</r:High>
    </r:NumberRange>
    <r:Anchor value="0">
      <r:CategoryReference>
        <r:URN>urn:ddi:us.mpc:CatScheme_1.Never:1</r:URN>
        <r:TypeOfObject>Category</r:TypeOfObject>
      </r:CategoryReference>
    </r:Anchor>
    <r:Anchor value="10">
      <r:CategoryReference>
        <r:URN>urn:ddi:us.mpc:CatScheme_1.Continually:1</r:URN>
        <r:TypeOfObject>Category</r:TypeOfObject>
      </r:CategoryReference>
    </r:Anchor>
    <r:ValueIncrement increment="1" startValue="0" endValue="10"/>
  </r:ScaleDimension>
  <r:DisplayLayout>ScaleRepresentationLine</r:DisplayLayout>
</r:ManagedScaleRepresentation>

<!-- Scale Representation (2) -->

<r:ManagedScaleRepresentation isVersionable="true">
  <r:URN>urn:ddi:us.mpc:ScaleRepresentation_2:1</r:URN>
  <r:ManagedScaleRepresentationName>
    <r:String xml:lang="en">Likert ScaleRepresentation</r:String>
  </r:ManagedScaleRepresentationName>
  <r:Label>
    <r:Content xml:lang="en">Likert Scale as Scale Representation</r:Content>
  </r:Label>

```

(continues on next page)

(continued from previous page)

```

<r:Description><r:Content xml:lang="en">Example 2</r:Content></r:Description>
<r:ScaleDimension>
  <r:NumberRange>
    <r:Low isInclusive="true">1</r:Low>
    <r:High isInclusive="true">5</r:High>
  </r:NumberRange>
  <r:Anchor value="1">
    <r:CategoryReference>
      <r:URN>urn:ddi:us.mpc:CatScheme_1.StronglyDisagree:1</r:URN>
      <r:TypeOfObject>Category</r:TypeOfObject>
    </r:CategoryReference>
  </r:Anchor>
  <r:Anchor value="2">
    <r:CategoryReference>
      <r:URN>urn:ddi:us.mpc:CatScheme_1.Disagree:1</r:URN>
      <r:TypeOfObject>Category</r:TypeOfObject>
    </r:CategoryReference>
  </r:Anchor>
  <r:Anchor value="3">
    <r:CategoryReference>
      <r:URN>urn:ddi:us.mpc:CatScheme_1.NeitherAgreeNorDisagree:1</r:URN>
      <r:TypeOfObject>Category</r:TypeOfObject>
    </r:CategoryReference>
  </r:Anchor>
  <r:Anchor value="4">
    <r:CategoryReference>
      <r:URN>urn:ddi:us.mpc:CatScheme_1.Agree:1</r:URN>
      <r:TypeOfObject>Category</r:TypeOfObject>
    </r:CategoryReference>
  </r:Anchor>
  <r:Anchor value="5">
    <r:CategoryReference>
      <r:URN>urn:ddi:us.mpc:CatScheme_1.StronglyAgree:1</r:URN>
      <r:TypeOfObject>Category</r:TypeOfObject>
    </r:CategoryReference>
  </r:Anchor>
  <r:MarkedIncrement increment="1" startValue="1" endValue="5"/>
  <r:ValueIncrement increment="1" startValue="1" endValue="5"/>
</r:ScaleDimension>
<r:DisplayLayout>ScaleLine</r:DisplayLayout>
</r:ManagedScaleRepresentation>

<!-- Scale Representation (3) -->

<r:ManagedScaleRepresentation isVersionable="true">
  <r:URN>urn:ddi:us.mpc:ScaleRepresentation_3:1</r:URN>
  <r:ManagedScaleRepresentationName>
    <r:String xml:lang="en">Diamond</r:String>
  </r:ManagedScaleRepresentationName>
  <r:Label>
    <r:Content xml:lang="en">Dimond of Opposites</r:Content>
  </r:Label>
  <r:Description>
    <r:Content xml:lang="en">Describes an area within which response is_
↳collected against opposing Scale.</r:Content>
  </r:Description>
  <r:ScaleDimension>

```

(continues on next page)

```

<r:Label>
  <r:Content xml:lang="en">Repulsion</r:Content>
</r:Label>
<r:NumberRange>
  <r:Low isInclusive="true">0</r:Low>
  <r:High isInclusive="true">10</r:High>
</r:NumberRange>
<r:MarkedIncrement increment="10" startValue="0" endValue="10"/>
<r:ValueIncrement increment="10" startValue="0" endValue="10"/>
</r:ScaleDimension>
<r:ScaleDimension>
  <r:Label>
    <r:Content xml:lang="en">Attraction</r:Content>
  </r:Label>
  <r:NumberRange>
    <r:Low isInclusive="true">0</r:Low>
    <r:High isInclusive="true">10</r:High>
  </r:NumberRange>
  <r:MarkedIncrement increment="10" startValue="0" endValue="10"/>
  <r:ValueIncrement increment="10" startValue="0" endValue="10"/>
</r:ScaleDimension>
<r:DimensionIntersect>
  <r:IncludedDimension>1</r:IncludedDimension>
  <r:IncludedDimension>2</r:IncludedDimension>
</r:DimensionIntersect>
<r:DisplayLayout>Outline</r:DisplayLayout>
</r:ManagedScaleRepresentation>

<!-- Missing Values -->

<r:ManagedMissingValuesRepresentation isVersionable="true" scopeOfUniqueness=
↪ "Agency" versionDate="2012-10-16">
  <r:URN>urn:ddi:us.mpc:MVD1:1</r:URN>
  <r:ManagedMissingValuesRepresentationName isPreferred="true" context="ANES">
    <r:String xml:lang="en-US">ANES standard missing values</r:String>
  </r:ManagedMissingValuesRepresentationName>
  <r:MissingCodeRepresentation>
    <r:CodeListReference isReference="true">
      <r:URN>urn:ddi:us.mpc:CodeList_X:1</r:URN>
      <r:TypeOfObject>CodeList</r:TypeOfObject>
    </r:CodeListReference>
  </r:MissingCodeRepresentation>
  <r:MissingNumericRepresentation>
    <r:NumberRange>
      <r:Label>
        <r:Content>No Response</r:Content>
      </r:Label>
      <r:Low isInclusive="true">-1</r:Low>
      <r:High isInclusive="true">-1</r:High>
    </r:NumberRange>
  </r:MissingNumericRepresentation>
</r:ManagedMissingValuesRepresentation>
</r:ManagedRepresentationScheme>
</g:ResourcePackage>

```

8.10 Represented Variable

```

<?xml version="1.0" encoding="UTF-8"?>
<!--
  Example - Represented Variable and use by a Variable with restrictions
-->

  <l:LogicalProduct xmlns:ddi="ddi:instance:3_3" xmlns:a="ddi:archive:3_3" xmlns:c=
↪ "ddi:conceptualcomponent:3_3" xmlns:cm="ddi:comparative:3_3" xmlns:d=
↪ "ddi:datacollection:3_3" xmlns:g="ddi:group:3_3" xmlns:l="ddi:logicalproduct:3_3"
↪ xmlns:p="ddi:physicaldataprotect:3_3" xmlns:pi="ddi:physicalinstance:3_3" xmlns:pr=
↪ "ddi:ddiprofile:3_3" xmlns:r="ddi:reusable:3_3" xmlns:s="ddi:studyunit:3_3"
↪ xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:xhtml="http://www.w3.org/1999/
↪ xhtml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation=
↪ "ddi:instance:3_3 ../../XMLSchema/instance.xsd">
    <r:URN typeId="Canonical">urn:ddi:us.mpc:LogProd:1</r:URN>
    <l:RepresentedVariableScheme scopeOfUniqueness="Agency" isMaintainable="true">
      <r:URN typeId="Canonical">urn:ddi:us.mpc:RepVarSheme:1</r:URN>

    <!-- Represented Variable Example 2 -->

    <l:RepresentedVariable isVersionable="true" scopeOfUniqueness="Agency">
      <r:URN typeId="Canonical">urn:ddi:us.mpc:RV_1:1</r:URN>
      <l:RepresentedVariableName>
        <r:String xml:lang="en">Household Type</r:String>
      </l:RepresentedVariableName>
      <r:Label>
        <r:Content xml:lang="en">Household Type</r:Content>
      </r:Label>
      <r:Description>
        <r:Content xml:lang="en">Defines the type of household in terms of Non-
↪ Family and Family components</r:Content>
      </r:Description>
      <r:UnitTypeReference isReference="true" isExternal="false" lateBound="false">
        <r:URN typeId="Canonical">urn:ddi:us.mpc:Households:1</r:URN>
        <r:TypeOfObject>Universe</r:TypeOfObject>
      </r:UnitTypeReference>
      <r:ConceptReference isReference="true" isExternal="false" lateBound="false">
        <r:URN typeId="Canonical">urn:ddi:us.mpc:HouseholdType:1</r:URN>
        <r:TypeOfObject>Concept</r:TypeOfObject>
      </r:ConceptReference>
      <r:CategorySchemeReference isReference="true" isExternal="false" lateBound=
↪ "false">
        <r:URN typeId="Canonical">urn:ddi:us.mpc:CatS_HouseholdType:1</
↪ r:URN>
        <r:TypeOfObject>CategoryScheme</r:TypeOfObject>
      </r:CategorySchemeReference>
    </l:RepresentedVariable>

    <!-- Represented Variable Example 2 -->

    <l:RepresentedVariable isVersionable="true" scopeOfUniqueness="Agency">
      <r:URN typeId="Canonical">urn:ddi:us.mpc:RV_Age:1</r:URN>
      <l:RepresentedVariableName>
        <r:String xml:lang="en">Age of Person</r:String>
      </l:RepresentedVariableName>
      <r:Label>

```

(continues on next page)

(continued from previous page)

```

    <r:Content xml:lang="en">Age of Person in Years</r:Content>
  </r:Label>
  <r:Description>
    <r:Content xml:lang="en">Age of Person expressed as a measure of the number
↳of years of age</r:Content>
  </r:Description>
  <r:UnitTypeReference isReference="true" isExternal="true" lateBound="false">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Persons:1.0</r:URN>
    <r:TypeOfObject>Universe</r:TypeOfObject>
  </r:UnitTypeReference>
  <r:ConceptReference isReference="true" isExternal="true" lateBound="false">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Concept_Age:1.0</r:URN>
    <r:TypeOfObject>Concept</r:TypeOfObject>
  </r:ConceptReference>
  <r:NumericRepresentation interval="1" decimalPositions="0"
↳classificationLevel="Interval">
    <r:NumericTypeCode>Integer</r:NumericTypeCode>
  </r:NumericRepresentation>
</l:RepresentedVariable>
</l:RepresentedVariableScheme>

<l:VariableScheme scopeOfUniqueness="Agency" isMaintainable="true">
  <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:VarScheme:1</r:URN>

  <!-- The following Variable reference the RepresentedVariable that is its base
↳and restricts the Universe to Persons in the United States -->

  <l:Variable isVersionable="true" scopeOfUniqueness="Agency">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Var_Age:1</r:URN>
    <l:VariableName>
      <r:String xml:lang="en">Age of Person</r:String>
    </l:VariableName>
    <r:Label>
      <r:Content xml:lang="en">Age of Person in Years</r:Content>
    </r:Label>
    <r:Description>
      <r:Content xml:lang="en">Age of Person in the United States expressed as a
↳measure of the number of years of age 0 to 100 with topcode of 100 being "100 or
↳over"</r:Content>
    </r:Description>
    <r:RepresentedVariableReference isReference="true" isExternal="true"
↳lateBound="false">
      <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:RV_Age:1</r:URN>
      <r:TypeOfObject>RepresentedVariable</r:TypeOfObject>
    </r:RepresentedVariableReference>
    <r:UniverseReference isReference="true" isExternal="true" lateBound="false">
      <r:URN>urn:ddi:us.mpc:Univ_PersonsInUS:1.0</r:URN>
      <r:TypeOfObject>Universe</r:TypeOfObject>
    </r:UniverseReference>
    <r:ConceptReference isReference="true" isExternal="true" lateBound="false">
      <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Concept_Age:1.0</r:URN>
      <r:TypeOfObject>Concept</r:TypeOfObject>
    </r:ConceptReference>
    <l:VariableRepresentation>
      <r:NumericRepresentationReference isReference="true" isExternal="true"
↳lateBound="false">
        <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Num_1_100_top:1.0</
↳r:URN>

```

(continues on next page)

(continued from previous page)

```

    <r:TypeOfObject>ManagedNumericRepresentation</r:TypeOfObject>
  </r:NumericRepresentationReference>
</l:VariableRepresentation>
</l:Variable>

  <!-- The following Variable reference the RepresentedVariable that is its base_
↳and restricts the Universe to teenagers (ages 13-19) -->

  <l:Variable isVersionable="true" scopeOfUniqueness="Agency">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Var_Age_13_19:1</r:URN>
    <l:VariableName>
      <r:String xml:lang="en">Age of Teenager</r:String>
    </l:VariableName>
    <r:Label>
      <r:Content xml:lang="en">Age of Person 13 to 19 years of age in Years</
↳r:Content>
    </r:Label>
    <r:Description>
      <r:Content xml:lang="en">Age of a Teenage Person expressed as a measure of_
↳the number of years of age 13 to 19</r:Content>
    </r:Description>
    <r:RepresentedVariableReference isReference="true" isExternal="true"
↳lateBound="false">
      <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:RV_Age:1</r:URN>
      <r:TypeOfObject>RepresentedVariable</r:TypeOfObject>
    </r:RepresentedVariableReference>
    <r:UniverseReference isReference="true" isExternal="true" lateBound="false">
      <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Univ_Persons_Age_13_19:1.
↳0</r:URN>
      <r:TypeOfObject>Universe</r:TypeOfObject>
    </r:UniverseReference>
    <r:ConceptReference isReference="true" isExternal="true" lateBound="false">
      <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:Concept_Age:1.0</r:URN>
      <r:TypeOfObject>Concept</r:TypeOfObject>
    </r:ConceptReference>
    <l:VariableRepresentation>
      <r:NumericRepresentation classificationLevel="Interval">
        <r:RecommendedDataType>Integer</r:RecommendedDataType>
        <r:MeasurementUnit>Years</r:MeasurementUnit>
        <r:NumberRange>
          <r:Low isInclusive="true">13</r:Low>
          <r:High isInclusive="true">19</r:High>
        </r:NumberRange>
      </r:NumericRepresentation>
    </l:VariableRepresentation>
  </l:Variable>
</l:VariableScheme>
</l:LogicalProduct>

```

8.11 Sampling

```

<?xml version="1.0" encoding="UTF-8"?>
<!--

```

(continues on next page)

Example - Sampling

-->

```

<g:ResourcePackage xmlns:ddi="ddi:instance:3_3" xmlns:a="ddi:archive:3_3" xmlns:c=
↳ "ddi:conceptualcomponent:3_3" xmlns:cm="ddi:comparative:3_3" xmlns:d=
↳ "ddi:datacollection:3_3" xmlns:g="ddi:group:3_3" xmlns:l="ddi:logicalproduct:3_3"
↳ xmlns:p="ddi:physicaldataprotect:3_3" xmlns:pi="ddi:physicalinstance:3_3" xmlns:pr=
↳ "ddi:ddiprofile:3_3" xmlns:r="ddi:reusable:3_3" xmlns:s="ddi:studyunit:3_3"
↳ xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/"
↳ " xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:xsi="http://www.w3.org/2001/
↳ XMLSchema-instance" xsi:schemaLocation="ddi:instance:3_3 ../../XMLSchema/instance.
↳ xsd">
  <r:URN>urn:ddi:us.mpc:RP_Sample:1</r:URN>
  <d:DataCollection isMaintainable="true" scopeOfUniqueness="Agency">
    <r:URN>urn:ddi:us.mpc:DColl:1</r:URN>
    <d:Methodology isVersionable="true" scopeOfUniqueness="Agency">
      <r:URN>urn:ddi:us.mpc:Meth_2:1</r:URN>
      <d:SamplingProcedure isIdentifiable="true" scopeOfUniqueness="Agency">
        <r:URN>urn:ddi:us.mpc:SamProc_1:1</r:URN>
        <d:TypeOfSamplingProcedure>Probability</d:TypeOfSamplingProcedure>
        <r:Description><r:Content><xhtml:p>The CPS sample is a probability sample
↳ designed primarily to produce national and state estimates of labor force
↳ characteristics of the civilian non-institutional population 16 years of age and
↳ older. The sample consists of independent samples in each state and the District of
↳ Columbia, and each state sample is specifically tailored to the demographic and
↳ labor market conditions that prevail in that particular state.</xhtml:p><xhtml:p>
↳ About 60,000 housing units are required in order to meet the national and State
↳ reliability criteria, drawn from 824 sample areas. Sample sizes are determined by
↳ reliability requirements that are expressed in terms of the coefficient of
↳ variation or CV. The coefficient of variation is a relative measure of the sampling
↳ error and is calculated as sampling error divided by the expected value of the
↳ given characteristic. Sufficient sample is allocated to maintain, at most, a 1.9-
↳ percent coefficient of variation on national monthly estimates of unemployment
↳ level, assuming a 6-percent unemployment rate. This translates into a change of 0.2
↳ percentage point in the unemployment rate being significant at a 90-percent
↳ confidence level. For each of the 50 States and for the District of Columbia, the
↳ design maintains a coefficient of variation of at most 8 percent on the annual
↳ average estimate of unemployment level, assuming a 6-percent unemployment rate.</
↳ xhtml:p></r:Content></r:Description>
        <d:PopulationOfConcern>
          <r:Description><r:Content>Housing units</r:Content></r:Description>
          <r:UniverseReference>
            <r:URN>urn:ddi:us.mpc:HousingUnits:1</r:URN>
            <r:TypeOfObject>Universe</r:TypeOfObject>
          </r:UniverseReference>
        </d:PopulationOfConcern>
        <d:PopulationOfConcern>
          <r:Description><r:Content>Persons residing in housing units 15 years of
↳ age or over and not in the Armed Forces</r:Content></r:Description>
          <r:UniverseReference>
            <r:URN>urn:ddi:us.mpc:Persons_typeD:1</r:URN>
            <r:TypeOfObject>Universe</r:TypeOfObject>
          </r:UniverseReference>
        </d:PopulationOfConcern>
        <d:OverallTargetSampleSize>
          <d:PrimaryPopulation numberOfUnits="60000">Housing Units</
↳ d:PrimaryPopulation>

```

(continues on next page)

(continued from previous page)

```

</d:OverallTargetSampleSize>
<d:ApplicationDetails>
  <d:SampleFrameReference>
    <r:URN>urn:ddi:us.mpc:SF_1:1</r:URN>
    <r:TypeOfObject>SampleFrame</r:TypeOfObject>
  </d:SampleFrameReference>
  <d:TargetSampleSize>
    <d:StrataNumber>1</d:StrataNumber>
    <d:DesiredSampleSize numberOfUnits="60000">Housing Units</
↪d:DesiredSampleSize>
  </d:TargetSampleSize>
  <d:DateOfSample><r:SimpleDate>2013-01-01</r:SimpleDate></d:DateOfSample>
  <d:ResponsibleForSamplingReference>
    <r:URN>urn:ddi:us.mpc:US_BLS:1</r:URN>
    <r:TypeOfObject>Organization</r:TypeOfObject>
  </d:ResponsibleForSamplingReference>
</d:ApplicationDetails>
</d:SamplingProcedure>
</d:Methodology>
<d:ProcessingInstructionScheme isMaintainable="true" scopeOfUniqueness="Agency">
  <r:URN>urn:ddi:us.mpc:ProcInstrScheme:1</r:URN>
  <d:GenerationInstruction isVersionable="true" scopeOfUniqueness="Agency">
    <r:URN>urn:ddi:us.mpc:ProcInstr_1:1</r:URN>
    <d:ExternalInformation>
      <r:OtherMaterial>
        <r:URN>urn:ddi:us.mpc:CPS_meth:1</r:URN>
        <r:ExternalURLReference>http://www.census.gov/prod/2006pubs/tp-66.pdf</
↪r:ExternalURLReference>
      </r:OtherMaterial>
    </d:ExternalInformation>
    <r:Description><r:Content>The overall state sampling interval is the
↪inverse of the probability of selection of each housing unit in a state for a self-
↪weighting design. By design, the overall state sampling interval is fixed, but the
↪state sample size is not fixed, allowing growth of the CPS sample because of
↪housing units built after Census 2000. (See Appendix B for details on how the
↪desired sample size is maintained.)</r:Content></r:Description>
    </d:GenerationInstruction>
  </d:ProcessingInstructionScheme>
  <d:SampleFrameScheme isMaintainable="true" scopeOfUniqueness="Agency">
    <r:URN>urn:ddi:us.mpc:SamFrameScheme:1</r:URN>
    <d:SampleFrame>
      <r:URN>urn:ddi:us.mpc:SF_1:1</r:URN>
      <d:SampleFrameName><r:String>2000 Decennial Census of Population and
↪Housing and the Building Permit Survey</r:String></d:SampleFrameName>
      <r:Description><r:Content>Census 2000 collected information on all living
↪quarters existing as of April 1, 2000, including characteristics of living quarters
↪as well as the demographic composition of people residing in these living quarters.
↪However, since the census does not cover housing units constructed since April 1,
↪2000, a sample of building permits issued in 2000 and later is used to supplement
↪the census data. These data are collected via the Building Permit Survey, which is
↪an ongoing survey conducted by the Census Bureau.</r:Content></r:Description>
      <d:ValidPeriod>
        <r:StartDate>2000-04-01</r:StartDate>
        <r:EndDate>2010-03-31</r:EndDate>
      </d:ValidPeriod>
      <d:CustodianReference>
        <r:URN>urn:ddi:us.mpc:USCB:1</r:URN>

```

(continues on next page)

(continued from previous page)

```

    <r:TypeOfObject>Organization</r:TypeOfObject>
  </d:CustodianReference>
  <r:UniverseReference>
    <r:URN>urn:ddi:us.mpc:UnitedStates:1</r:URN>
    <r:TypeOfObject>Universe</r:TypeOfObject>
  </r:UniverseReference>
  <d:UnitsOfFrame>
    <d:PrimaryPopulation numberOfUnits="131704730">Housing Units</
↳d:PrimaryPopulation>
    <d:SecondaryPopulation numberOfUnits="532488">Group Quarters</
↳d:SecondaryPopulation>
    <d:SecondaryPopulation numberOfUnits="390217">Area</d:SecondaryPopulation>
    <d:SecondaryPopulation numberOfUnits="2891048">Permit</
↳d:SecondaryPopulation>
  </d:UnitsOfFrame>
  <d:FrameLimitations><r:Content>Where city-type street addresses from Census
↳2000 do not exist, or where residential construction does not need or require
↳building permits, area samples are sometimes necessary.</r:Content></
↳d:FrameLimitations>
  <d:AuxiliaryInformation><r:Content>CPS sample selection is coordinated with
↳the following demographic surveys in the 2000 redesign: the American Housing
↳Survey--Metropolitan sample, the American Housing Survey--National sample, the
↳Consumer Expenditure Survey--Diary sample, the Consumer Expenditure
↳Survey--Quarterly sample, the Current Point of Purchase Survey, the National Crime
↳Victimization Survey, the National Health Interview Survey, the Rent and Property
↳Tax Survey, and the Survey of Income and Program Participation.</r:Content></
↳d:AuxiliaryInformation>
  </d:SampleFrame>
</d:SampleFrameScheme>
  <d:SamplingPlanScheme isMaintainable="true" scopeOfUniqueness="Agency">
    <r:URN>urn:ddi:us.mpc:SamPlanScheme:1</r:URN>
  </d:SamplingPlanScheme>
</d>DataCollection>
</g:ResourcePackage>

```

8.12 Statistical Summary

```

<?xml version="1.0" encoding="UTF-8"?>
<!--
  Example - Statistical Summary
-->

  <pi:StatisticalSummary xmlns:ddi="ddi:instance:3_3" xmlns:a="ddi:archive:3_3"
↳xmlns:c="ddi:conceptualcomponent:3_3" xmlns:cm="ddi:comparative:3_3" xmlns:d=
↳"ddi:datacollection:3_3" xmlns:g="ddi:group:3_3" xmlns:l="ddi:logicalproduct:3_3"
↳xmlns:p="ddi:physicaldataprotuct:3_3" xmlns:pi="ddi:physicalinstance:3_3" xmlns:pr=
↳"ddi:ddiprofile:3_3" xmlns:r="ddi:reusable:3_3" xmlns:s="ddi:studyunit:3_3"
↳xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:xhtml="http://www.w3.org/1999/
↳xhtml" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation=
↳"ddi:instance:3_3 ../XMLSchema/instance.xsd">
    <pi:VariableStatistics isVersionable="true" scopeOfUniqueness="Agency">
      <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:VS_2:1</r:URN>
      <r:VariableReference>
        <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:V1:1</r:URN>

```

(continues on next page)

(continued from previous page)

```

    <r:TypeOfObject>Variable</r:TypeOfObject>
  </r:VariableReference>
  <pi:TotalResponses>100</pi:TotalResponses>
  <pi:StandardWeightReference>
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:SW:1</r:URN>
    <r:TypeOfObject>StandardWeight</r:TypeOfObject>
  </pi:StandardWeightReference>
  <pi:MissingValuesReference>
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:MV_1:1</r:URN>
    <r:TypeOfObject>ManagedMissingValuesRepresentation</r:TypeOfObject>
  </pi:MissingValuesReference>
  <pi:SummaryStatistic>
    <pi:TypeOfSummaryStatistic>wtCount</pi:TypeOfSummaryStatistic>
    <pi:Statistic isWeighted="true" computationBase="validOnly">1000</
  <pi:Statistic>
    </pi:SummaryStatistic>
  <pi:UnfilteredCategoryStatistics>
    <pi:VariableCategory>
      <pi:CategoryValue><r:Value>1</r:Value></pi:CategoryValue>
      <pi:CategoryStatistic>
        <pi:TypeOfCategoryStatistic>wtCount</pi:TypeOfCategoryStatistic>
        <pi:Statistic isWeighted="true" computationBase="validOnly">450</
  <pi:Statistic>
    </pi:CategoryStatistic>
    <pi:CategoryStatistic>
      <pi:TypeOfCategoryStatistic>weightedPct</pi:TypeOfCategoryStatistic>
      <pi:Statistic isWeighted="true" computationBase="validOnly">0.45</
  <pi:Statistic>
    </pi:CategoryStatistic>
    </pi:VariableCategory>
  <pi:VariableCategory>
    <pi:CategoryValue><r:Value>2</r:Value></pi:CategoryValue>
    <pi:CategoryStatistic>
      <pi:TypeOfCategoryStatistic>wtCount</pi:TypeOfCategoryStatistic>
      <pi:Statistic isWeighted="true" computationBase="validOnly">550</
  <pi:Statistic>
    </pi:CategoryStatistic>
    <pi:CategoryStatistic>
      <pi:TypeOfCategoryStatistic>weightedPct</pi:TypeOfCategoryStatistic>
      <pi:Statistic isWeighted="true" computationBase="validOnly">0.55</
  <pi:Statistic>
    </pi:CategoryStatistic>
    </pi:VariableCategory>
  </pi:UnfilteredCategoryStatistics>
  <pi:FilteredCategoryStatistics>
    <pi:FilterVariableReference>
      <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:V2:1</r:URN>
      <r:TypeOfObject>Variable</r:TypeOfObject>
    </pi:FilterVariableReference>
    <pi:FilterVariableCategory>
      <pi:FilterCategoryValue><r:Value>a</r:Value></pi:FilterCategoryValue>
      <pi:VariableCategory>
        <pi:CategoryValue><r:Value>1</r:Value></pi:CategoryValue>
        <pi:CategoryStatistic>
          <pi:TypeOfCategoryStatistic>Count</pi:TypeOfCategoryStatistic>
          <pi:Statistic isWeighted="true" computationBase="validOnly">20</
  <pi:Statistic>

```

(continues on next page)

(continued from previous page)

```

    </pi:CategoryStatistic>
    <pi:CategoryStatistic>
      <pi:TypeOfCategoryStatistic>colPct</pi:TypeOfCategoryStatistic>
      <pi:Statistic isWeighted="true" computationBase="validOnly">0.4</
↳pi:Statistic>
      </pi:CategoryStatistic>
    </pi:VariableCategory>
    <pi:VariableCategory>
      <pi:CategoryValue><r:Value>2</r:Value></pi:CategoryValue>
      <pi:CategoryStatistic>
        <pi:TypeOfCategoryStatistic>Count</pi:TypeOfCategoryStatistic>
        <pi:Statistic isWeighted="true" computationBase="validOnly">30</
↳pi:Statistic>
        </pi:CategoryStatistic>
      <pi:CategoryStatistic>
        <pi:TypeOfCategoryStatistic>colPct</pi:TypeOfCategoryStatistic>
        <pi:Statistic isWeighted="true" computationBase="validOnly">0.6</
↳pi:Statistic>
        </pi:CategoryStatistic>
      </pi:VariableCategory>
    </pi:FilterVariableCategory>
    <pi:FilterVariableCategory>
      <pi:FilterCategoryValue><r:Value>b</r:Value></pi:FilterCategoryValue>
      <pi:VariableCategory>
        <pi:CategoryValue><r:Value>1</r:Value></pi:CategoryValue>
        <pi:CategoryStatistic>
          <pi:TypeOfCategoryStatistic>Count</pi:TypeOfCategoryStatistic>
          <pi:Statistic isWeighted="true" computationBase="validOnly">25</
↳pi:Statistic>
          </pi:CategoryStatistic>
        <pi:CategoryStatistic>
          <pi:TypeOfCategoryStatistic>colPct</pi:TypeOfCategoryStatistic>
          <pi:Statistic isWeighted="true" computationBase="validOnly">0.5</
↳pi:Statistic>
          </pi:CategoryStatistic>
        </pi:VariableCategory>
      <pi:VariableCategory>
        <pi:CategoryValue><r:Value>2</r:Value></pi:CategoryValue>
        <pi:CategoryStatistic>
          <pi:TypeOfCategoryStatistic>Count</pi:TypeOfCategoryStatistic>
          <pi:Statistic isWeighted="true" computationBase="validOnly">25</
↳pi:Statistic>
          </pi:CategoryStatistic>
        <pi:CategoryStatistic>
          <pi:TypeOfCategoryStatistic>colPct</pi:TypeOfCategoryStatistic>
          <pi:Statistic isWeighted="true" computationBase="validOnly">0.5</
↳pi:Statistic>
          </pi:CategoryStatistic>
        </pi:VariableCategory>
      </pi:FilterVariableCategory>
    </pi:FilteredCategoryStatistics>
  </pi:VariableStatistics>
  <pi:VariableStatistics isVersionable="true" scopeOfUniqueness="Agency">
    <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:VS_2:1</r:URN>
    <r:VariableReference>
      <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:V2:1</r:URN>
      <r:TypeOfObject>Variable</r:TypeOfObject>

```

(continues on next page)

(continued from previous page)

```

</r:VariableReference>
<pi:TotalResponses>100</pi:TotalResponses>
<pi:StandardWeightReference>
  <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:SW:1</r:URN>
  <r:TypeOfObject>StandardWeight</r:TypeOfObject>
</pi:StandardWeightReference>
<pi:MissingValuesReference>
  <r:URN typeOfIdentifier="Canonical">urn:ddi:us.mpc:MV_1:1</r:URN>
  <r:TypeOfObject>ManagedMissingValuesRepresentation</r:TypeOfObject>
</pi:MissingValuesReference>
<pi:SummaryStatistic>
  <pi:TypeOfSummaryStatistic>wtCount</pi:TypeOfSummaryStatistic>
  <pi:Statistic isWeighted="true" computationBase="validOnly">1000</
↪pi:Statistic>
  </pi:SummaryStatistic>
<pi:UnfilteredCategoryStatistics>
  <pi:VariableCategory>
    <pi:CategoryValue><r:Value>a</r:Value></pi:CategoryValue>
    <pi:CategoryStatistic>
      <pi:TypeOfCategoryStatistic>wtCount</pi:TypeOfCategoryStatistic>
      <pi:Statistic isWeighted="true" computationBase="validOnly">500</
↪pi:Statistic>
    </pi:CategoryStatistic>
    <pi:CategoryStatistic>
      <pi:TypeOfCategoryStatistic>weightedPct</pi:TypeOfCategoryStatistic>
      <pi:Statistic isWeighted="true" computationBase="validOnly">0.50</
↪pi:Statistic>
    </pi:CategoryStatistic>
  </pi:VariableCategory>
  <pi:VariableCategory>
    <pi:CategoryValue><r:Value>b</r:Value></pi:CategoryValue>
    <pi:CategoryStatistic>
      <pi:TypeOfCategoryStatistic>wtCount</pi:TypeOfCategoryStatistic>
      <pi:Statistic isWeighted="true" computationBase="validOnly">500</
↪pi:Statistic>
    </pi:CategoryStatistic>
    <pi:CategoryStatistic>
      <pi:TypeOfCategoryStatistic>weightedPct</pi:TypeOfCategoryStatistic>
      <pi:Statistic isWeighted="true" computationBase="validOnly">0.50</
↪pi:Statistic>
    </pi:CategoryStatistic>
  </pi:VariableCategory>
</pi:UnfilteredCategoryStatistics>
</pi:VariableStatistics>
</pi:StatisticalSummary>

```

8.13 Weighting

```

<?xml version="1.0" encoding="UTF-8"?>
<!--

  Example - Weighting

-->

```

(continues on next page)

(continued from previous page)

```

<g:ResourcePackage xmlns:ddi="ddi:instance:3_3" xmlns:a="ddi:archive:3_3" xmlns:c=
↳"ddi:conceptualcomponent:3_3" xmlns:cm="ddi:comparative:3_3" xmlns:d=
↳"ddi:datacollection:3_3" xmlns:g="ddi:group:3_3" xmlns:l="ddi:logicalproduct:3_3"
↳xmlns:p="ddi:physicaldataprotect:3_3" xmlns:pi="ddi:physicalinstance:3_3" xmlns:pr=
↳"ddi:ddiprofile:3_3" xmlns:r="ddi:reusable:3_3" xmlns:s="ddi:studyunit:3_3"
↳xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/
↳" xmlns:xhtml="http://www.w3.org/1999/xhtml" xmlns:xsi="http://www.w3.org/2001/
↳XMLSchema-instance" xsi:schemaLocation="ddi:instance:3_3 ../../XMLSchema/instance.
↳xsd">
  <r:URN>urn:ddi:us.mpc:RP_weight:1</r:URN>
  <d:DataCollection isMaintainable="true" scopeOfUniqueness="Agency">
    <r:URN>urn:ddi:us.mpc:DColl:1</r:URN>
    <d:Methodology isVersionable="true" scopeOfUniqueness="Agency">
      <r:URN>urn:ddi:us.mpc:Meth_1:1</r:URN>
      <d:WeightingMethodology isIdentifiable="true" scopeOfUniqueness="Agency">
        <r:URN>urn:ddi:us.mpc:WgtMeth_1:1</r:URN>
        <d:TypeOfWeightingMethodology>Standard Weight</d:TypeOfWeightingMethodology>
        <r:Description><r:Content>Sample is taken using a simple probability
↳resulting in each case being of equal weight in the resulting data.</r:Content></
↳r:Description>
        </d:WeightingMethodology>
        <d:WeightingMethodology isIdentifiable="true" scopeOfUniqueness="Agency">
          <r:URN>urn:ddi:us.mpc:WgtMeth_2:1</r:URN>
          <d:TypeOfWeightingMethodology>Inverse Probability Weighting</
↳d:TypeOfWeightingMethodology>
          <r:Description><r:Content>The estimation procedure involves weighting the
↳data from each sample person by the inverse of the probability of the person being
↳in the sample. This gives a rough measure of the number of actual persons that the
↳sample person represents.</r:Content></r:Description>
          </d:WeightingMethodology>
        </d:Methodology>
        <d:ProcessingEventScheme isMaintainable="true" scopeOfUniqueness="Agency">
          <r:URN>urn:ddi:us.mpc:ProcEventScheme:1</r:URN>
          <d:ProcessingEvent isVersionable="true" scopeOfUniqueness="Agency">
            <r:URN>urn:ddi:us.mpc:ProcEvent_1:1</r:URN>
            <d:Weighting isVersionable="true" scopeOfUniqueness="Agency">
              <r:URN>urn:ddi:us.mpc:WgtEvent_1:1</r:URN>
            </d:Weighting>
            <d>DataAppraisalInformation>
              <d:ResponseRate>
                <d:SampleSize>45027</d:SampleSize>
                <d:NumberOfResponses>35793</d:NumberOfResponses>
                <d:SpecificResponseRate>79.3</d:SpecificResponseRate>
              </d:ResponseRate>
              <d:SamplingError><r:Content>2% margin of error</r:Content></
↳d:SamplingError>
            </d>DataAppraisalInformation>
          </d:ProcessingEvent>
          <d:ProcessingEvent isVersionable="true" scopeOfUniqueness="Agency">
            <r:URN>urn:ddi:us.mpc:ProcEvent_1:1</r:URN>
            <d:Weighting isVersionable="true" scopeOfUniqueness="Agency">
              <r:URN>urn:ddi:us.mpc:WgtEvent_2:1</r:URN>
            <d:WeightingMethodologyReference>
              <r:URN>urn:ddi:us.mpc:WgtMeth_1:1</r:URN>
              <r:TypeOfObject>WeightingMethodology</r:TypeOfObject>
            </d:WeightingMethodologyReference>

```

(continues on next page)

(continued from previous page)

```

    <r:AnalysisUnit>Person</r:AnalysisUnit>
    <d:UsageGuide>
      <d:UsageExample><r:Content>Weight all variables x10</r:Content></
↪d:UsageExample>
      <d:UsageRestrictions><r:Content>None</r:Content></d:UsageRestrictions>
      <d:UsageRecommendations><r:Content>All cases represent 10 units in the_
↪population.</r:Content></d:UsageRecommendations>
    </d:UsageGuide>
    <d:StandardWeight>
      <r:URN>urn:ddi:us.mpc:SW:1</r:URN>
      <d:StandardWeightValue>10</d:StandardWeightValue>
    </d:StandardWeight>
  </d:Weighting>
</d:ProcessingEvent>
<d:ProcessingEvent isVersionable="true" scopeOfUniqueness="Agency">
  <r:URN>urn:ddi:us.mpc:ProcEvent_1:1</r:URN>
  <d:Weighting isVersionable="true" scopeOfUniqueness="Agency">
    <r:URN>urn:ddi:us.mpc:WgtEvent_3:1</r:URN>
    <d:WeightingMethodologyReference>
      <r:URN>urn:ddi:us.mpc:WgtMeth_2:1</r:URN>
      <r:TypeOfObject>WeightingMethodology</r:TypeOfObject>
    </d:WeightingMethodologyReference>
    <r:AnalysisUnit>Person</r:AnalysisUnit>
    <d:UsageGuide>
      <d:UsageExample><r:Content>Weight all variables by the case specific_
↪weight.</r:Content></d:UsageExample>
      <d:UsageRestrictions><r:Content>None</r:Content></d:UsageRestrictions>
      <d:UsageRecommendations><r:Content>All variables within a case should_
↪indicate the appropriate specific weight variable to use in analysing the data.</
↪r:Content></d:UsageRecommendations>
    </d:UsageGuide>
    <d:StandardWeight>
      <r:URN>urn:ddi:us.mpc:SW:1</r:URN>
      <d:StandardWeightValue>10</d:StandardWeightValue>
    </d:StandardWeight>
  </d:Weighting>
</d:ProcessingEvent>
</d:ProcessingEventScheme>
</d:DataCollection>
<l:LogicalProduct isMaintainable="true" scopeOfUniqueness="Agency">
  <r:URN>urn:ddi:us.mpc:LogProd:1</r:URN>
  <l:VariableScheme>
    <r:URN>urn:ddi:us.mpc:VScheme:1</r:URN>
    <l:Variable>
      <r:URN>urn:ddi:us.mpc:Var_CaseID:1</r:URN>
      <r:Label><r:Content>Case ID</r:Content></r:Label>
    </l:Variable>
    <l:Variable isWeight="true">
      <r:URN>urn:ddi:us.mpc:Var_PWGT:1</r:URN>
      <r:Label><r:Content>Person Weight</r:Content></r:Label>
    </l:Variable>
    <l:Variable>
      <r:URN>urn:ddi:us.mpc:Var_1:1</r:URN>
      <l:WeightingProcessReference>
        <r:URN>urn:ddi:us.mpc:WgtEvent_3:1</r:URN>
        <r:TypeOfObject>Weighting</r:TypeOfObject>
      </l:WeightingProcessReference>

```

(continues on next page)

(continued from previous page)

```
<l:VariableRepresentation>
  <r:WeightVariableReference>
    <r:URN>urn:ddi:us.mpc:Var_PWGT:1</r:URN>
    <r:TypeOfObject>Variable</r:TypeOfObject>
  </r:WeightVariableReference>
</l:VariableRepresentation>
</l:Variable>
<l:Variable>
  <r:URN>urn:ddi:us.mpc:Var_1:1</r:URN>
  <l:WeightingProcessReference>
    <r:URN>urn:ddi:us.mpc:WgtEvent_2:1</r:URN>
    <r:TypeOfObject>Weighting</r:TypeOfObject>
  </l:WeightingProcessReference>
  <l:VariableRepresentation>
    <l:StandardWeightReference>
      <r:URN>urn:ddi:us.mpc:SW:1</r:URN>
      <r:TypeOfObject>StandardWeight</r:TypeOfObject>
    </l:StandardWeightReference>
  </l:VariableRepresentation>
</l:Variable>
</l:VariableScheme>
</l:LogicalProduct>
</g:ResourcePackage>
```