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Minutes of CCSDS MOIMS Data Archiving Ingest (DAI) Working Group

17-21 October 2016
ASI, Rome, Italy

EXECUTIVE SUMMARY

Subject: Minutes of the DAI Working Group,

Meeting Date: 17-21 October 2016

Place: ASI, Rome, Italy

Present:

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Various Email list DAI

This document

https://docs.google.com/document/d/1xMfIN8zRCOfAetI_08lleSPXhd_so0qI3BjLBZ-RswQ

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1 Introduction

08:45 CCSDS Plenary Auditorium
 09:45 MOIMS Plenary Room 6
 10:45 MOIMS-DAI Room 14

10:30-10:45 Coffee in foyer
 12:30-13:30 Lunch in Room 10
 15:30-15:45 Coffee in foyer
 18:00 End of day

Day	AM	PM
Monday 17 th Oct	CCSDS plenary	Initial discussion of OAIS updates See OAIS (ISO 14721): https://public.ccsds.org/Pubs/650x0m2.pdf and http://review.oais.info
Tuesday 18 th	OAIS and ISO 16363 See ISO 16363: https://public.ccsds.org/Pubs/652x0m1.pdf and http://review.oais.info	Forward planning Architecture diagram DEDSL-XML Schema book see https://www.dropbox.com/s/sevja9dcn3dl68d/DEDSL_XML_20160927.zip?dl=0
Wednesday 19 th	Information preparation for long term use See https://www.dropbox.com/s/vq7tt0jdfi7usg/6NNxN-M-0x6-ILF-latest-version.docx?dl=0	Information preparation for long term use See https://www.dropbox.com/s/vq7tt0jdfi7usg/6NNxN-M-0x6-ILF-latest-version.docx?dl=0
Thursday 20 th	Discussion with SM&C	Information preparation for long term use Telecon de-brief of OAIS discussions.

		RID requirements feedback
Friday 21 st	Wrap-up Preparation of reports	CCSDS MOIMS plenary room 12

CCSDS Plenary notes

- SANA Steering Group - Registry Guidelines <https://public.ccsds.org/Pubs/313x1y1.pdf>
CCSDS SANA Registry Management Policy. Yellow Book - CCSDS Normative Procedures. Issue 1. June 2016. See also <http://sanaregistry.org/>
- Cross support service Management WG - Develop plan for XFUD usage
- CSS area level RMP+SANA registry - registry software tool
- Need input with industry

MOIMS Plenary notes

- MOIMS dinner on 19th at 8pm Lo Scopettaro, Lungotevere Testaccio 7, Rome
- Coming out of Nestor's comments:
 - Does DAI duplicate other work carried out elsewhere?
 - **ACTION: DAI should prepare a note for CMC about potential duplications/ overlaps e.g. OMG (MK), OGC (Bob D?), W3C, IVOA (DG), IPDA, SNIA (DG), IEEE due by next meeting (6 months)**

2 OAIS updates

The review site <http://review.oais.info> has introductory text which described the review process:

Description of the review process:

The open process used since 1995 to create and revise OAIS has contributed to its success. In order to ensure the continued usefulness of OAIS any revision must remain backward compatible with regard to major terminology and concepts. Further, for consistency the general level of detail should not be changed nor should the standard be changed from a reference model to an implementation design. Archive implementation standards or implementation profiles or detailed archival process standards or protocols should be addressed, but not in this document. They would become separate standards and would be developed through separate CCSDS projects. A particular interest for the current OAIS update is to reduce ambiguities and to fill in any missing or weak concepts and to add useful terminology.

The CCSDS and ISO process is rather formal; the CCSDS process is documented in <https://public.ccsds.org/Pubs/A02x1y4c2.pdf> while that of ISO is available at <http://www.iso.org/sites/directives/2016/consolidated/index.xhtml>. CCSDS follows the ISO code of conduct to ensure it addresses consensus, transparency, openness, impartiality. The integrated set of CCSDS and ISO activities expected to be used for this review is available [here](#) and the detailed schedule, which will be updated from time to time, is [here](#).

Although CCSDS is an organisation created and managed by the space agencies it welcomes participation from industry, academia and outside organizations.

The CCSDS-DAI working group is, among other things, in charge of coordinating the Five Year Review of OAIS that includes gathering and adjudicating all comments, creating the consensus revision, and coordinating the review and approval of the revised OAIS standard. The working group is open to all; to participate, one should join the MOIMS_DAI mailing list [here](#). This mailing list is used to co-ordinate discussions and meetings. The website <http://review.oais.info> is being used to record, discuss and reach consensus on the suggested revisions; to contribute to the site one can create an account at <http://review.oais.info/createaccount.cgi>. Most work is carried out by email and this is also used to send out agenda and details for the weekly virtual meetings.

CCSDS management has approved the schedule to produce a revised draft of OAIS by the end of 2017. Of course this could be completed earlier but past experience suggests that to reach consensus takes time. The draft is then submitted for review by the management of CCSDS and TC20/SC13 of ISO who will circulate the draft to their national bodies and wide set of contacts around the world and coordinate the responses and return them to CCSDS-DAI. The draft will also be circulated widely by CCSDS-DAI itself. Ideally all the issues will have been addressed during the development of the draft. However further issues may be pointed out and these must be discussed and the issues resolved by reaching consensus. A second round of reviews may then be necessary. The schedule is to publish the new issue of OAIS by CCSDS and ISO by mid-2019.

This is a long and involved process but is the one which has been well proven by CCSDS and ISO and has contributed to the success of OAIS.

Number of suggested changes in review.oais.info at 21061015:

See

http://review.oais.info/buglist.cgi?bug_status=_open_&list_id=246&order=Importance&query_format=specific

OAIS (ISO 14721)

Sections	Count of suggested changes
Section 1: Introduction	13
Section 2 : OAIS Concepts	1
Section 2.2 OAIS Information	7
Section 2.3: OAIS High-level External Interactions	7
Section 3 : OAIS Responsibilities	1
Section 3.1: Mandatory Responsibilities	2
Section 4.1: Functional Model	1
Section 4.2: Information Model	2
TOTAL	34

ISO 16363	
Section 3 : Organisational Infrastructure	2
Section 4 : Digital Object Management	5
Section 5 : Infrastructure and security risk management	1
TOTAL	8

Expected inputs

ACTION: Add comments to review.oais.info

DUE DATE for all of the actions is mid-November 2016

Initial discussion of suggested changes received and assign actions to people to put comments

RID	Action
14	ACTION: JGG to make initial comments
42	Approved with modifications: Original statement is too complex - needs to be changed but need to think if suggested change is OK. Maybe split into 2 or 3 sentences. Or use "implies or suggests" rather than "defines" ACTION: MH to add initial comment
40	ACTION: BD - clarify as "From.." "To: "
26	ACTION: GA - suggest words
28	ACTION: JGG and RS
27	Seems OK but not clear mention of Knowledge base is correct here? ACTION: JGG, DG, MH

30 and 29 plus 35	Accepted but probably should have a concrete example rather than simply using more general terms. ACTION: MH, GA ACTION: MC to suggest specific words
37	Seems OK?? ACTION: JGG
38	The “In general” is not justified but must be clear this is just an example rather than generally applicable. ACTION: JGG, RS, GA
36	OK
34	For web harvesting the harvester is the Producer ACTION: MH
50	Need to check consistency with PAIMAS and PAIS documents. There may be a gap in the explanations of how things hang together. Note that “schema” is used in general terms - not just XML schema ACTION: JGG then ACTION: MH propose specific text changes
1	Needs other input
2	Comments please ACTION: JGG - may be better to choose one or other e.g. mark “Representation Network” as deprecated
39	ACTION: JGG to propose specific words
17	Not clear that “in detail” is needed. “In addition to members of the Designated Community” is misleading and needs rephrasing or removing. Or “may include but not limited to the DC...” ACTION: GA, JGG, DG, MK
16	Proposal seems OK but need to check with DS ACTION: DS Text seems to be repeated in section 2.2 and other places ACTION: JGG
23	ACTION: MC to propose specific text

22	Not clear this extra text is necessary ACTION: CC, RS
15	Seems clear that “in detail” should be removed. “in whatever level of detail that consumer is allowed” - should not use “consumer” in the definition of Consumer. Since Access Control is always applied (implicitly) then do we need to specify it explicitly here? Maybe “to the degree that that entity is allowed” - or just delete it all ACTION: MK, RS, CC
20	Looks as if it should be “Order Agreement” - but needs changes to diagrams and may be made consistent with RID 50 ACTION: MH, RS
19	OK
18	May be better to change “Content Information object” to “Digital Object” - but would cause difficulties with definition of PDI - in which case MC’s suggestion is OK. ACTION: DG, JGG
24	May be better to change “Representation Rendering Software” to simply “Rendering Software” but check implications. ACTION: DG, MC
31	Presumably filename of the XF DU manifest file or name of the ZIP file? ACTION: DG
32	General feeling that the original text is better. Also may need to mention possibility of adding PDI ACTION: MH, JGG
33	Perhaps break into 2 sentences. Should also press MC for text ACTION: JGG, MC
NESTOR _Conform ance_Sta ndards in 1.4 und 1.5	We should mention 16919 in section 1.5 and mention ISO audit and certification ACTION: MH to give feedback to NESTOR May be better to put the Roadmap list in non-normative annex to allow greater freedom

NESTOR_ OAIS_TIP _categorie s in 4.1 und 4.2	ACTION: MH to give feedback
NESTOR _OAIS-Re view04_R epräsenta tionen in 4.2	ACTION: MH point to 5.1.3.5
NESTOR _Producer in 3.2, 4.1 and 4.3	ACTION: MH - change in phrasing
PIN	

3 ISO 16363

11	OK ACTION: DG to propose specific text
41	OK Also check other capitalisations of glossary terms
46	ACTION: RS - disagrees with change ACTION: MH - may cause confusion with general use of “preservation strategies” Do we need to define “Preservation Strategies”?? ACTION RS and MH should contact M Lunghi to develop alternative suggested change
43	ACTION SH to provide suggested text. Not clear what was meant by “deprecated” in this case We could put this list of documents in an annex.

44 and 45	ACTION: SH should be more specific General observation - this re-grouping could apply in many areas but this would be difficult and time consuming, probably without much benefit
47	Seems to need to replace “record” in the Supporting Text by some other word. May also need to do the same in the metric because of possible confusion with archival “Record” ACTION: DG, JGG
48 and 49	ACTION: SH must propose more specific points and also be clear what points made in the paper referenced should be considered

4 Information preparation for long term use

Reminder of previous actions:

- review section 5 wrt inclusion of PMBOK and DMBOK ideas
- Re-write annexes

DG gave a presentation about the development and current contents of IPELTU.

Need to explain stages/phases/process groups relationships

RS pointed out similarities to her current work.

MK strongly suggests that we make sure that the document speaks to the space agencies by giving annexes for specific space agencies

The body of the document describes the IPELTU in general; the annexes map these to specific disciplines/agencies.

ACTION: MK: create Space Agencies related annex: by Dec 31 2016

ACTION: JGG: review LTDP annex

The following sections are taken from the IPELTU document and pasted here to allow community editing.

4.1 Information Areas Derived from OAIS DEFINED Information Objects

OAIS defines several major categories of information that make up the Archival Information Package (AIP): Content Information and Preservation Description Information (PDI). Packaging Information needs to be available to clearly identify and delimit what makes up the AIP. The OAIS standard also defines the Package Description, which is needed to provide visibility and access into the contents of an Archive, but is not required for the Long Term Preservation of the Content Information.

The next sections provide additional information about each of these Information Areas.

4.1.1 Content Information

Content Information includes the Data Objects as well as the Representation Information needed to understand and use the Data Objects. Representation Information is classified as Structure Information, Semantic Information and Other Representation Information. In broad terms Structure Information describes the physical layout of the Data Objects, Semantic Information describes the meaning of the values in the Data Object and Other Representation Information identifies other dependencies that need to be understood to use the Data Objects including software.

4.1.1.1 Data Objects

Data Objects are the data which will become the primary focus of preservation. Additional Information could include:

- Planned and actual data rates
- Planned and actual volumes of data
- Quality tests which may be performed on the data and test results
- Information Properties which may be of use e.g. accuracy of the data values

Duplicates?

4.1.1.2 Representation Information

The Representation Information includes

- structure,
- semantics
- other Representation Information such as analysis and display software.

In some projects the Representation Information may be captured in a number of formal documents. In others, especially those which extend over many years or even decades, there are likely to be a number of pieces of Representation Information which are not formally captured. For example there may be information which “everyone knows” such as:

- the way in which software libraries are named or organized
- the meaning of comments e.g. “will run on Cray-like machines” – may actually mean the software must be built on machines which use double-precision floating point numbers by default.
- Compiler bugs which must be worked-around
- The meaning of elements of the data header (if any)
- The location of documentation for proprietary systems

Each piece of Representation Information will consist of a Data Object and its Representation Information; each piece of this Representation Information will have its own Data Object and Representation Information, and so on. OAIS describes this as a Representation (Information) Network (RIN).

The amount of Representation Information which the archive will eventually require will depend upon the Designated Community which the archive serves. It may be useful to work with the archive to draft the RIN as early and in as much detail as possible.

Quality flags and magic values (care needed when transformed) or NULL or missing values

Figure 4-2 Example of a RIN

4.1.2 Preservation Description Information (PDI)

The PDI is information that is necessary to preserve the Content Information. It includes Reference Information, Provenance Information, Context Information, Fixity Information and Access Rights Information.

4.1.2.1 Reference Information

Reference Information provides a unique identification for each product. Useful Additional Information may include:

- Identifiers used in publications
- Naming conventions used in internal systems
 - How versions/editions are dealt with

4.1.2.2 Provenance Information

Provenance Information provides information including

- specific aspects of the project origins and history,
 - from what it was derived i.e. previously collected data
 - what data is related
- data custody – who was in control of the data at various point in the project,
- version control – what, if any, version control was used for the data,
- calibration and test.

4.1.2.3 Context Information

Context Information identifies or captures the knowledge that is needed to fully understand and interpret the project results. It includes background, publications and relationships.

- Broader aspects of the project origins and history
- Funders
- Current Research Information Systems (CRIS) information

4.1.2.4 Fixity Information

Fixity Information allows verification of the integrity of Data Objects and could include:

- Digests and Checksums – how they were calculated and where they are kept
- Description of how the digests are safeguarded.

4.1.2.5 Access Rights Information

Access Rights Information including

- ownership,
- copyright and licensing or access restrictions.

4.1.3 Package Description

The Package Description is used to provide a search capability to identify collections or products of interest. It includes finding aids and browse data. The archive must create [DS1] appropriate Package Description Information. The project could provide information to allow the archive to do this.

4.1.4 Packaging Information^[JG2]

The Packaging Information is the information that is used to bind and identify the components of an Information Package.

The archive creates the AIPs and it is unlikely that the project will provide information to help in this unless the archive and the project have a close relation and the archive has chosen to maintain an AIP structure that maps directly to the project data structure.

4.2 Information Areas Derived from Issues Outside the Information Model

4.2.1 Publications

There may be many publications associated with the Primary Data including:

- research publications based on the data
- publications containing the data

- documents about the data – some of these documents may also be Representation Information

4.2.2 Related datasets

There may be many other data instances which may be related to the Primary Data (with its Additional Information) and which may aid in exploiting the Primary Data, for example

- data in the same discipline, for example astronomical data
- data in a complementary discipline, for example atomic spectral databases and astronomical data
- data about the same object, for example data measured at different wavelengths about a particular star

4.2.3 Potential other uses of the data

The Primary Data may have been created for a particular purpose, for example a particular research study or as a record of a step in a manufacturing process. The initial exploitation of the data may then be to produce a research paper or to prove the quality of manufacture.

The project may only be interested in, or may only have funding for, exploiting the Primary Data in those ways.

However the project members may recognize that the Primary Data may have potential other uses. For example the Primary Data may have been overhead imagery captured to monitor changes in infrastructure to aid mapping functions and another data project may be able to make use of that same imagery for weather domain cloud cover studies.

4.2.4 Suggestions about the appropriate Designated Community

The project may have some specific ideas about what Knowledge Base would be needed to understand and use the Primary Data, given the Representation Information which the project provides. For example there may be a general area of scientific expertise or a type of manufacturing process. This information could be useful for any archive which wishes to preserve and facilitate the exploitation of the Primary Data, given the Representation provided by the project.

[DS1]Earlier it was stated that Package Description Information was not needed for preservation. Needs clarification.

[JG2]Should Packaging Information and Package Description be Additional Information Areas or not? If not, should they be moved to a different section that is not titled AIAs from OAIS?

4.3 Issues Suggested by PMBOK [JG1]

XXXXX

- Integration Management (Not Relevant?)
- Scope Management
 - o Changes
- Time Management (Not Relevant?)
- Cost Management
- Quality Management
- Human Resource Management (Not Relevant?)
 - o Record of people responsible for the data e.g. who could change it or who made decisions about authenticity
 - o Who was involved in handover -/ acceptance
- Communications Management (Not Relevant?)
- Risk Management
- Procurement Management (Not Relevant?)

1.1.1 Scope Management

XXXXX

4.3.2 Quality management

XXXXX

4.3.3 Cost management

XXXXX

4.3.4 Risk Management

XXXXX

1.1.5 Stakeholder Management

XXXXX

1.2 Issues Suggested by DMBOK

XXXXX

- Data Governance
- Data Architecture Management
- Data Development (to be renamed in the next version [3] of DMBOK to Modelling and Design)
- Data Operations Management (to be renamed Data Storage and Operations)
 - Data Security Management
 - Reference and Master Data Management

- Data Warehousing and Business Intelligence Management
 - Document and Content Management
- Meta-data Management
- Data Quality Management

1.2.1 Data Governance

XXXXX

1.2.2 Data Architecture Management

XXXXX

1.2.3 Data Development (or Modeling and Design)

XXXXX

1.2.4 Data Operations Management (or Data Storage and Operations)

XXXXX

1.2.5 Data security Management

XXXXX

1.2.6 Reference and Master Data Management^[JG2]

XXXXX

1.2.7 Data warehousing and Business Information Management

XXXXX

1.2.8 Document and content Management

XXXXX

1.2.9 Meta-Data Management^[JG3]

XXXXX

1.2.10 Data quality Management^[JG4]

XXXXX

Provenance

[JG1]Do we keep these as Additional Information Areas or not? If so, they will need to be added into the Section 5 table. If not, why are we including them here?

Is there an argument that the PMBOK and DMBOK Knowledge Areas are not needed since the vast majority of 'metadata' that needs to be captured falls into one or more of the OAIS areas. If they are not mostly captured by OAIS areas, then should there be other OAIS areas introduced in the new version of OAIS?

[JG2]Does any part of this not overlap with OAIS Areas?

[JG3]Does any part of this not overlap with OAIS Areas?

[JG4]Does this overlap with PMBOK Quality Management?

5 Discussion with SM&C

MK provided an introduction regarding the context of MOIMS-DAI WG and MOIMS - Spacecraft Monitor and Control (SM&C).

A bit of discussion regarding whether DAI WG and predecessor have used PDS. Certainly there has been a lot of interaction in the past. We would like it to continue. We certainly have a lot of common interests with any existing, well-run archive. Perhaps we can adopt a lot of the PDS infrastructure as models for development of the CCSDS Archive protocol suite.

Reviewed the slides that MK has pulled together (copy available on MOIMS-DAI mailing list) for our discussions with SM&C. WG suggested a few rearrangements and quickening of the future schedule to meet user needs to get standards. These are the current plans but each project is subject to CMC management approval which will take place based on available interest and resources at the time of project approval.

DG has provided feedback on System Engineering Area's (SEA's) Architecture work. The original draft was provided by Roger Thompson and has been distributed on the DAI mailing list. DG's updates are also available on the mailing list and the updated pages are included for convenience below. DG's explained his updates and laid out his rationale for them. WG should continue to make comments on these updates.

Joint meeting SM&C and DAI

DAn SMith (DS): If mission life ends with the orbit then SM&C supports "archive" for that time. But if the mission life end when the science data is no longer used then SM&C does not cover that but DAI does.

MK: recruited by Vint Cerf to look at long term preservation - decided that DAI is the best forum for developing standards in this area.

MK presented the slides, emphasising the analogies with SM&C architecture, as well as the differences. The slides are available at

<http://cwe.ccsds.org/moims/docs/MOIMS-DAI/Meeting%20Materials/2016/Fall/DAI%20WG%20material%20for%20joint%20SMC%20meeting.pptx>

Pointed out that MAL allows description of interfaces and service description interfaces - would be interested to look at even if DAI does not use the s/w.

EDS and MAL compatibility - because some text copied to EDS from MAL. MAL started in 2004, released in 2012. Various suggestions that the flavour of the month should be used but always changing. However this philosophy is not documented. On the other hand it is a natural DAI view.

MK points out the importance of the “singularity event” when the Mission Ops s/w and h/w has to change.

MM asks for the use case.

Example of JPL use of Europa missing. They wanted Galileo engineering data to cross-check but that was not possible.

DG points out that, people may be puzzled by where the complexity which must be there, lies. The complexity is isolated and controlled using the OAIS concepts.

MM raises the issue of how this should be raised into a draft project and gain agency support.

Use the term “bespoke” rather than “legacy”.

SM&C prototype s/w can probably be made available.

Sam Cooper presented a brief tutorial on SM&C offerings.

Relevant documents:

- 520.1-M-1 Reference Model
- 521.0-B-2 MAL
- 521.1-B-1 COM

COM is a data specification and 3 services

- Archiving
- Tracking
- Asynch access

The Object model provides a standard way to identify objects

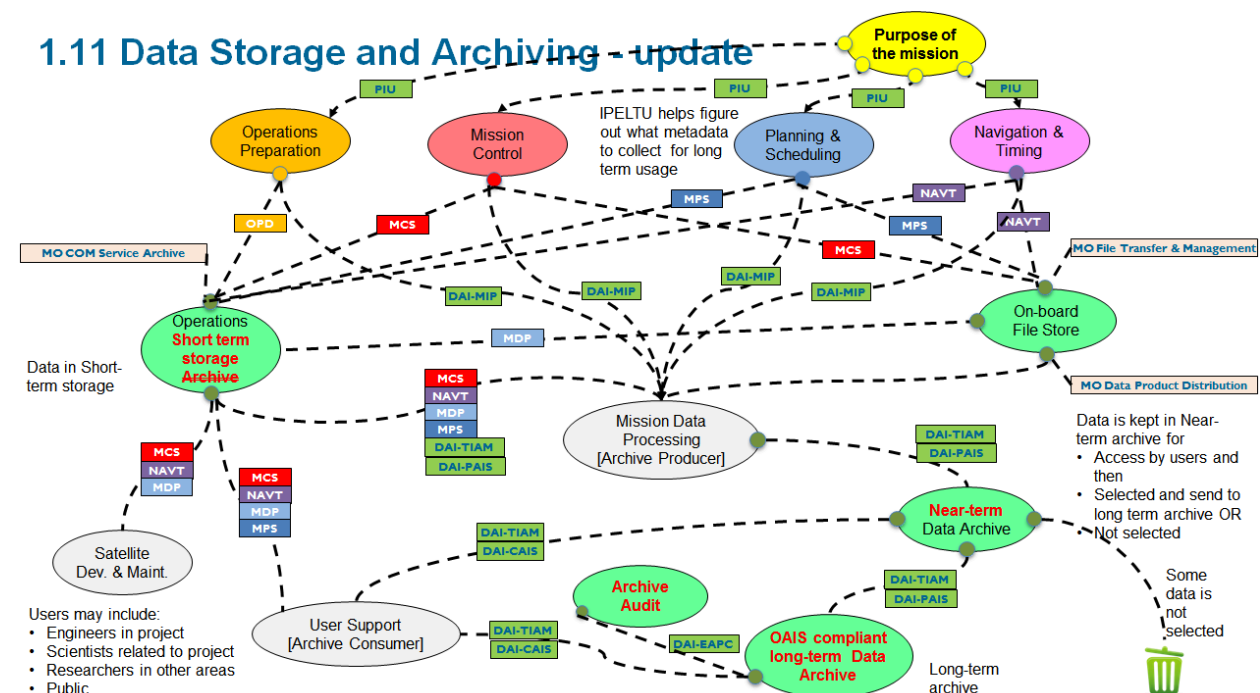
After some discussion it appears that COM can be used to implement OAIS AIPs. The advantage is that there are implementations on top of “big data”/“no sql” lower level infrastructures.

ACTION: DG to ask Sam Cooper sam@brightascension.com for COM s/w

MM points out that SM&C are developing a Product Dissemination document. It used the concept of “Product Format” - DG suggested that the term “Product Representation Information” would be more accurate because it could point to formats, semantics, s/w etc.

MM asked if XFDUs could be used for dissemination - DAI representatives agreed that this was true.

ACTION: DG: Follow up suggestion that SM&C Product Dissemination document uses “Product Representation Information”



Group	Service	Function	Operations	Data	Description	Standards	SD
DAI A Green Book will give an	Producer Archive Interface [PAIS]	Create Submission Information Package (SIP) Data Archive	Process to organise the transfer of information to the repository.	Submission Information Package (SIP) SIP Sequencing	The current PAIS standard provides the abstract	Producer-Archive Interface Specification (PAIS) [CCSDS 651.1-B-1]	

overview of the way in which these can work together.		Mission Data Processing SIP Sequencing Constraint Transfer Object Collection Descriptor	Producer Archive Interface Protocol (PAIP)	g Constraint Transfer Object Collection Descriptor	syntax and an XML implementation of descriptions of data to be sent to an archive. It addresses how these data will be aggregated into packages for transmission and one concrete implementation for the packages based on the XML Formatted Data Unit (XFDU) standard. A service specification is proposed but has not yet been developed. PAIP defines the protocol/API/binding		
	Consumer Archive Interface [CAIS]	Data Archive User Support	Creation and distribution of Disseminati	Dissemination Information Package (DIP),	Delivery of digital sources from the Archive.	A number of standards will be required,	

			on Information Package (DIP) Consumer Archive Interface Protocol (CAIP)	tailored for specific disciplines and repositories.	CAIP and related standards define the delivery protocol/API/binding which can be customised for various disciplines.	tailored to different communities Need to develop - Consumer Archive Interface Operations Concept - Consumer Archive Interface Methodology Abstract Standard - Consumer Archive Interface Specification - Consumer Archive Interface Protocol (CAIP)		
	Preparation for Information Use [PIU]	Plan the definition, creation and collection of required metadata	Planning and scheduling the collection of information to enable (re-)use of	Will need to define data structures, if possible enabling automation of, the	Provides guidelines for the creation of the metadata needed for the long	Information Preparation to Enable Long Term Use (IPELTU)	M	

			data. Rules for creating/capturing such metadata.	capture of the required metadata to support the use of data produced by a satellite.	term preservation and use of the information which is created.		
	Create metadata for Information Preservation [CMIP]	Produce metadata needed to maintain understandability of authentic information (see [PIU])	Create metadata which will be needed to preserve and use information.	· Representation · Information · Fixity Information · Provenance · Information · Reference · Information · Context Information	Standards describe specific data structures for capturing metadata. A number of other standards will be needed, or may be adopted from other areas, to create metadata in other areas such as Provenance. A Green Book will give an overview of the way in which these can	· The Data Description Language EAST Specification (CCSD00 10). Blue Book. Issue 3. June 2010. [CCSDS 644.0-B-3] · Parameter Value Language Specification (CCSD00 06 and CCSD00 08). Blue Book. Issue 2. June	B

					be put together.	2000. [CCSDS 641.0-B-2] · Data Entity Dictionar y Specificat ion Languag e (DEDSL) —Abstrac t Syntax (CCSD00 11). Blue Book. Issue 1. June 2001. [CCSDS 647.1-B-1] · Data Entity Dictionar y Specificat ion Languag e (DEDSL) —PVL Syntax (CCSD00 12). Blue Book. Issue 1. June	
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						2001. [CCSDS 647.2-B-1] · Data Entity Dictionar y Specificat ion Languag e (DEDSL) —XML/D TD Syntax (CCSD00 13). Blue Book. Issue 1. January 2002. [CCSDS 647.3-B-1] · Data Entity Dictionar y Specificat ion Languag e (DEDSL) —XML/X SD Syntax. Orange Book. Issue 1.	
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						December 2016. [CCSDS 647.4-O-1] To be submitted Standard Formatted Data Units — Control Authority Procedures. Blue Book. Issue 1. June 1993. [CCSDS 630.0-B-1] Standard Formatted Data Units — Control Authority Data Structures. Blue Book. Issue 1. November 1994. [CCSDS 632.0-B-1]	
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		Long term Preservation and Use [LTPU]	Maintain understand ability of authentic information	Preserve information over the long-term	Abstract data structures are defined. These are implemented in other BBs.	Core concepts and terminology needed for long term preservation, describing processes, services and abstract data structures.	Reference Model for an Open Archival Information System (OAIS) [CCSDS 650.0-M-2]	M
		Transfer information with appropriate metadata [TIAM]	Definition of Information Packages, including AIPs	Package together information	Data Structure for packaging together the required data and metadata components	XML Schema for packaging of all the types of metadata needed	XML Formatted Data Unit (XFDU) Structure and Construction Rules [CCSDS 661.0-B-1]	B
		Evaluation of Archive Preservation Capabilities [EAPC]	Evaluate the capabilities an archive in terms of its ability to preserve digitally encoded information	Specific metrics to be used in the evaluation.	Data structures to capture evaluations for each metric	Standards describe the metrics and processes needed for audit and certification of digital repositories.	Audit and Certification of Trustworthy Digital Repositories. Magenta Book. Issue 1. September 2011. [CCSDS 652.0-M-1]	M

						Requireme nts for Bodies Providing Audit and Certificatio n of Candidate Trustworth y Digital Repositorie s. Magenta Book. Issue 2. March 2014. [CCSDS 652.1-M-2]	
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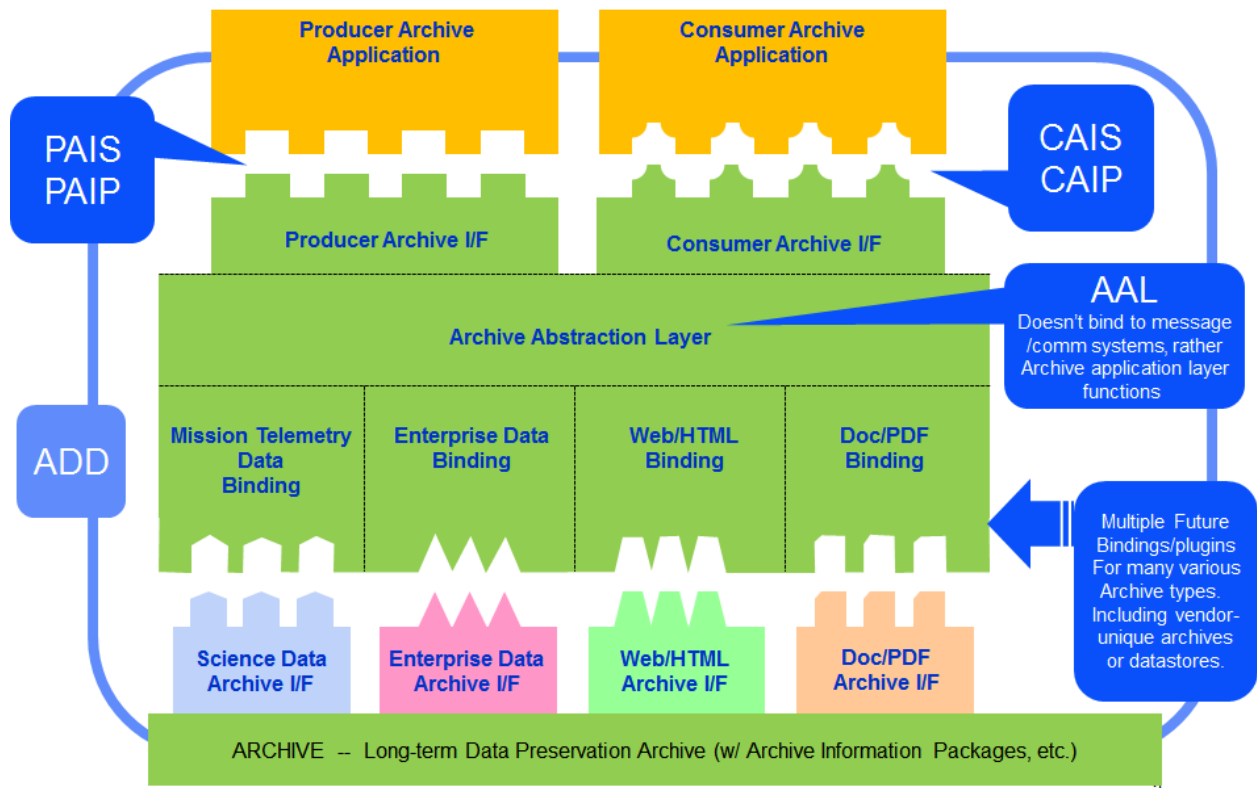
After discussion it was agreed that this input to Roger is right but may need a few tweaks. The view is consistent with the roadmap/architecture and the DAI input to MOSSG.

ACTION: DG to discuss these with Roger.

6 Forward planning

6.1 Architecture diagram

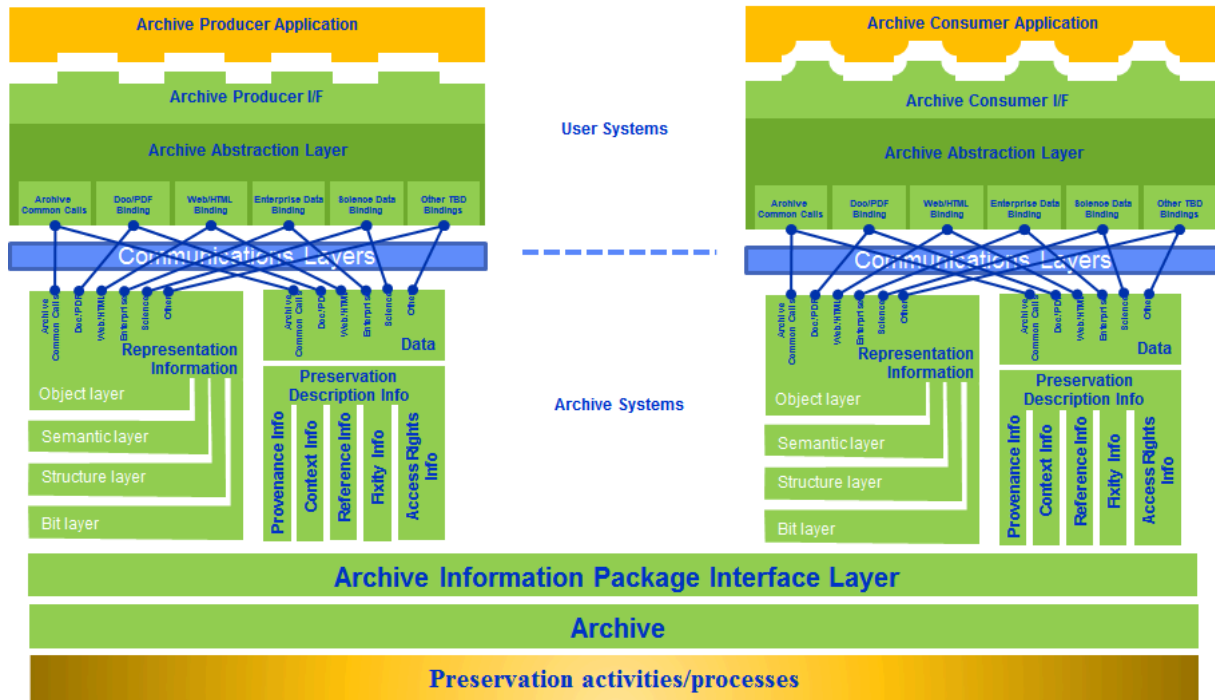
Standardized Archive System Architecture



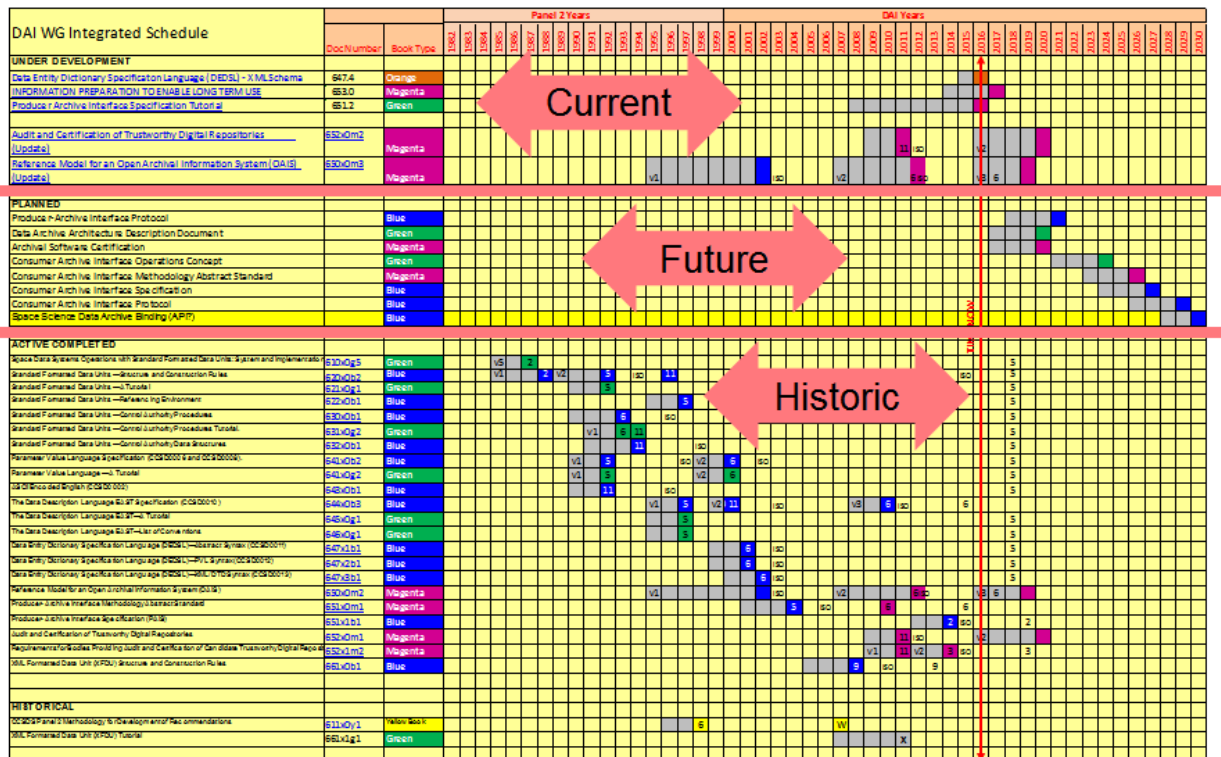
- PAIP because PAIS is not yet a protocol/API/binding
- PAIP would complete the "Producer" suite of specs.
- Data Archive ADD would describe the overall architecture for archives all the way down to protocols
- May be better covered in an existing DAI book?
- On the Consumer side, produce a "Consumer" counterpart for each existing "Producer" spec
- Consumer Archive Interface Operations Concept
- Consumer Archive Interface Methodology Abstract Standard
- Consumer Archive Interface Specification
- Consumer Archive Interface Protocol
- This is a draft approach – not set in stone.
- Still need to add domain-specific "bindings/plugin-ins/APIs"

More Detailed Draft Concept - Standardized Archive System Architecture

★ Protocol view



DAI WG History & *Notional* Future Schedule



8

Check RASIM GB (300 series) : Ref Arch for Space Info Management. PS will send DG contact details.

CC suggests that MEDONA (a French standard produced by SIAF and CINES) could be a basis for PAIP.

7 DEDSL-XML Schema book

See https://www.dropbox.com/s/sejya9dcn3dl68d/DEDSL_XML_20160927.zip?dl=0

Propose to make OB now and then if a second implementation becomes available it could be made BB.

ACTION: DG Circulate the ZIP file with DEDSL/XML Schema plus schema, received from CC. Link to presentation about DEDSL:

https://www.dropbox.com/s/248rx3by5ygbess/CCSDS_DEDSL_XSD_OCT2016.pptx?dl=0

RESOLUTION - ask for publication as OB

8 CCSDS MOIMS plenary

9 Action Item Review

Assigned to	Due date	Description
DavidGiaretta	2016-09-30	Mail to list of lists noting the explanation of the review process is on the review.oais.info site
DaiGroup	2016-10-10	Provide ideas about people to contact in Space Agencies on Information side - let them know what MOSSG/IOAG is discussing.

10 New Action Items

11 Resolutions

- DEDSL XML/Schema should be published as OB