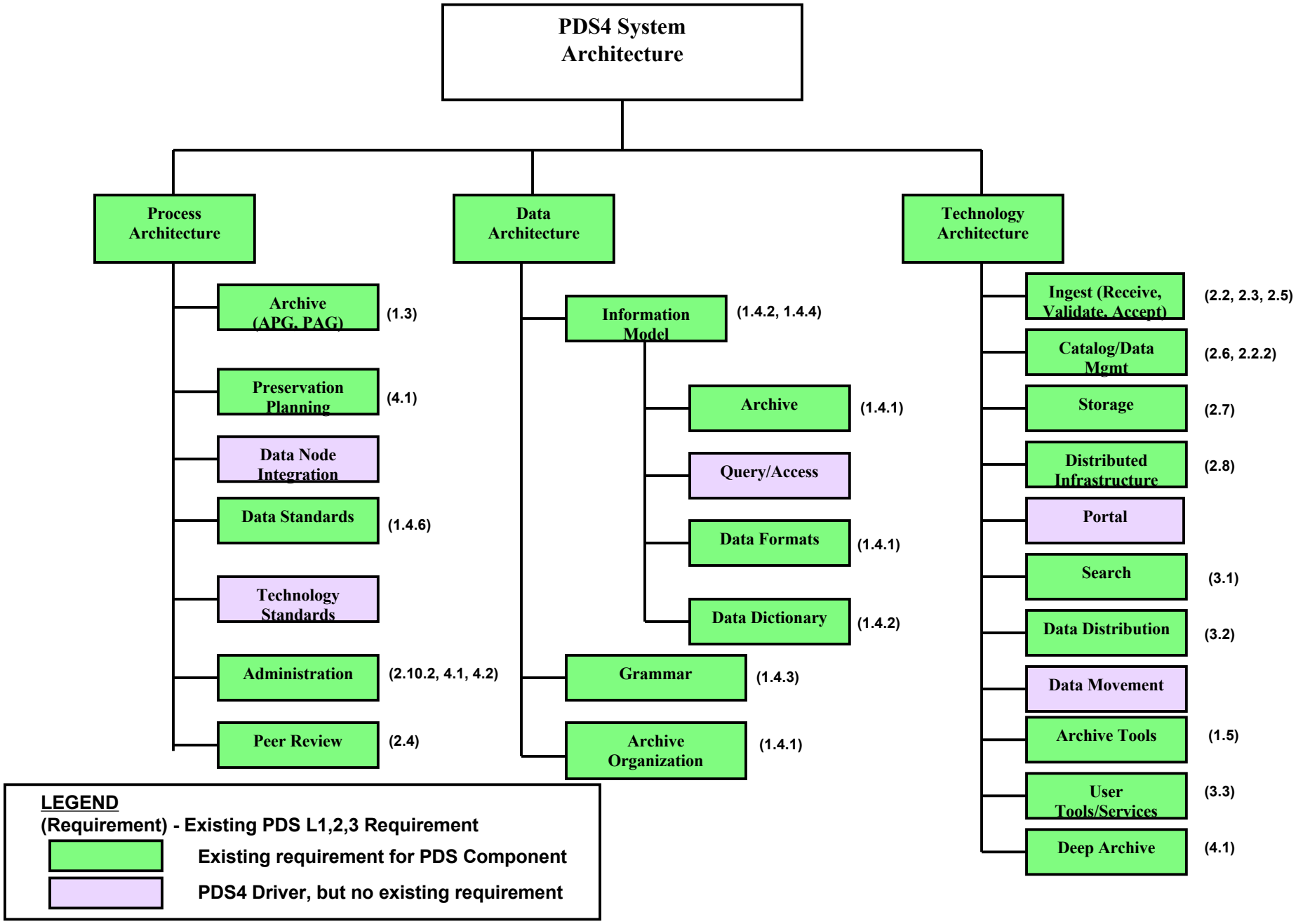
Decomposition of PDS System Architecture



Process Architecture Elements

- Archive: This element covers the necessary processes for archiving data within PDS per requirement 1.3.

- Preservation Planning: This element covers the necessary processes for long term preservation of PDS data per requirement 4.1.

- Data Node Integration: This element covers the necessary processes for integrating data nodes into PDS. *There is currently no PDS level 1,2,3 requirement for integrating data nodes into PDS.*

- Data Standards: This element covers the process for managing the PDS data standards per requirement 1.4.6.

- Technology Standards: This element covers process for managing and selecting technology standards, including interface standards, necessary for PDS to function as a federation. *There is currently no PDS level 1,2,3 requirement for integrating data nodes into PDS.*

- Administration: This element covers the policies and processes that are necessary to develop and operate the PDS per requirements 2.10.2, 4.1 and 4.2.

- Peer Review: This element covers the processes for performing peer reviews of data submissions per requirement 2.4.

Data Architecture Elements

- Information Model: This element identifies the overall information model for PDS including the objects, attributes and their relationships per PDS requirement 1.4.2 and 1.4.4.
  - Archive: This element identifies the archive view of the information model per requirement 1.4.1.
  - Query: This element identifies the query view(s) of the information model. These are considered discipline-dependent. *There is currently no PDS level 1,2,3 requirement for developing query views of the information model.*
  - Data Formats: This element identifies the data formats needed for archiving of data per requirement 1.4.1.
  - Data Dictionary: This element identifies the data dictionary as a component of the information model per requirement 1.4.2.
- Grammar: This element identifies the necessary grammar(s) for describing PDS data per requirement 1.4.3.
- Archive Organization: This element identifies the necessary structural layout of a repository per requirement 1.4.1.

Technology Architecture Elements

- Ingest (Receive, Validate, Accept): This element describes the components which manage the receipt, validation and acceptance of PDS data deliveries per requirements 2.2, 2.3, and 2.5. The above ingest functions are also described in the Open Archival Information System (OAIS) Reference Model.

- Catalog/Data Mgmt: This element describes the components which manage the cataloging and tracking of PDS data including both PDS data products and data sets per requirements 2.6 and 2.2.2. This function is also described in the OAIS Reference Model.

- Storage: This element describes the storage management components for managing the PDS archive per PDS requirement 2.7. This function is also described in the OAIS Reference Model.

- Distributed Infrastructure: This element describes the infrastructure components for distributed access and exchange of data per PDS requirement 2.8.

- Portal: This element describes the access portal(s) to PDS data and related information. *There is currently no PDS requirement for this.*

Technology Architecture Elements (cont…)

- Search: This element describes the components within the search infrastructure for searching PDS data sets and data products per requirement 3.1.

- Distribution: This element describes the distribution of PDS data to the user community including the ability to download data online per requirement 3.2.

- Data Movement: This element describes software and services necessary to move data between data providers, data nodes, and the NSSDC. *There is currently no requirement for data movement within PDS*.

- Archive Tools: This element describes a set of archive tools for generating, validating and submitting data to PDS by data providers. PDS requirement 1.5 currently describes these tools.

- User Tools/Services: This element describes the set of tools and services for working with PDS data including visualization, transformation, display, etc. They are identified by PDS requirement 3.3

Technology Architecture Elements (cont…)

- Deep Archive: This element describes the deep archive functions and services used by the PDS per requirement 4.1.

Gaps and Considerations

- New architectural elements for which there is no PDS 1/2/3 requirement
- PDS Roadmap Drivers on the Architecture for which there is no PDS 1/2/3 requirement
- New drivers
- Constraints on the system
- Other unaddressed issues derived from PDS3