

**DEFINITION — HOW DATA IS DESCRIBED**

<b>CONTRACTS</b> (6) <ul style="list-style-type: none"> <li>ADOPT: ODCS (BITOL @ LF)</li> <li>ADOPT: OpenAPI (LF)</li> <li>ADOPT: AsyncAPI (LF)</li> <li>ADOPT: GraphQL (LF)</li> <li>SITUATIONAL: gRPC (CNCF)</li> <li>SITUATIONAL: OData (OASIS)</li> </ul>	<b>DATA PRODUCTS</b> (4) <ul style="list-style-type: none"> <li>ADOPT: ODPS (BITOL @ LF)</li> <li>ASSESS: DPDS (ODM)</li> <li>ASSESS: ODPS (LF)</li> <li>ASSESS: DPROD (OMG)</li> </ul>	<b>SCHEMA</b> (7) <ul style="list-style-type: none"> <li>ADOPT: XML Schema (W3C)</li> <li>ADOPT: JSON Schema (IETF)</li> <li>ADOPT: SQL DDL (ISO/IEC)</li> <li>ADOPT: AVRO Schema (ASF)</li> <li>ADOPT: Protobuf (GOOGLE)</li> <li>ADOPT: LinkML (LINKML)</li> <li>ASSESS: Table Schema (FRICITIONLESS)</li> </ul>	<b>SEMANTICS</b> (8) <ul style="list-style-type: none"> <li>SITUATIONAL: W3C RDF/OWL (W3C)</li> <li>SITUATIONAL: W3C DCAT (W3C)</li> <li>SITUATIONAL: W3C SKOS (W3C)</li> <li>SITUATIONAL: W3C SHACL (W3C)</li> <li>SITUATIONAL: JSON-LD (W3C)</li> <li>ASSESS: OSI (OSI INITIATIVE)</li> <li>ASSESS: schema.org (W3C)</li> <li>ASSESS: ShEx (W3C)</li> </ul>
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**STORAGE — WHERE DATA LIVES**

<b>FILE FORMATS</b> (8) <ul style="list-style-type: none"> <li>ADOPT: CSV (IETF)</li> <li>ADOPT: JSON (IETF)</li> <li>ADOPT: XML (W3C)</li> <li>ADOPT: YAML (YAML.ORG)</li> <li>ADOPT: PARQUET (ASF)</li> <li>ADOPT: AVRO (ASF)</li> <li>SITUATIONAL: ORC (ASF)</li> <li>ASSESS: Lance (LANCE)</li> </ul>	<b>OPEN TABLE FORMATS</b> (4) <ul style="list-style-type: none"> <li>ADOPT: Iceberg (ASF)</li> <li>SITUATIONAL: Delta (LF)</li> <li>ASSESS: Hudi (ASF)</li> <li>ASSESS: Lance (LANCE)</li> </ul>	<b>STORAGE SYSTEMS</b> (2) <ul style="list-style-type: none"> <li>ADOPT: S3 (AWS)</li> <li>CAUTION: HDFS (ASF)</li> </ul>
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**MOVEMENT — HOW DATA FLOWS BETWEEN SYSTEMS**

<b>DATABASE CONNECTIVITY</b> (5) <ul style="list-style-type: none"> <li>ADOPT: JDBC (JCP)</li> <li>ADOPT: ODBC (ISO/IEC)</li> <li>ADOPT: ADBC (ASF)</li> <li>ASSESS: Quack (DUCKDB LABS)</li> <li>CAUTION: XMLA (MICROSOFT)</li> </ul>	<b>INTERCONNECTION</b> (3) <ul style="list-style-type: none"> <li>ADOPT: HTTP (IETF)</li> <li>SITUATIONAL: Delta Sharing (LF)</li> <li>CAUTION: FTP / SFTP (IETF)</li> </ul>	<b>MESSAGING</b> (5) <ul style="list-style-type: none"> <li>ADOPT: Kafka (ASF)</li> <li>ADOPT: CloudEvents (CNCF)</li> <li>SITUATIONAL: MQTT (OASIS)</li> <li>SITUATIONAL: AMQP (OASIS)</li> <li>CAUTION: JMS (JAKARTA EE)</li> </ul>
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**TRANSFORMATION — HOW DATA IS PROCESSED AND RESHAPED**

<b>IN-MEMORY FORMAT</b> (2) <ul style="list-style-type: none"> <li>ADOPT: DataFrame API (DATA-APIs)</li> <li>ADOPT: Apache Arrow (ASF)</li> </ul>	<b>PROCESSING</b> (7) <ul style="list-style-type: none"> <li>ADOPT: Spark (ASF)</li> <li>ADOPT: Pandas (NUMFOCUS)</li> <li>ADOPT: SQL DML (ISO/IEC)</li> <li>ADOPT: dbt (DBT LABS)</li> <li>SITUATIONAL: Beam (ASF)</li> <li>ASSESS: Ibis (IBIS)</li> <li>CAUTION: XSLT (W3C)</li> </ul>
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**DISCOVERY — HOW DATA IS FOUND AND TRACED**

<b>CATALOG APIS</b> (5) <ul style="list-style-type: none"> <li>ADOPT: Iceberg Catalog (ASF)</li> <li>ADOPT: Schema Registry (CONFLUENT)</li> <li>SITUATIONAL: Unity Catalog (LF)</li> <li>ASSESS: DuckLake (DUCKDB LABS)</li> <li>CAUTION: Hive Metastore (ASF)</li> </ul>	<b>LINEAGE</b> (2) <ul style="list-style-type: none"> <li>ADOPT: OpenLineage (LF)</li> <li>ASSESS: W3C PROV (W3C)</li> </ul>
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**OPERATIONS — HOW DATA IS QUERIED, OBSERVED, GOVERNED**

<b>QUERY</b> (5) <ul style="list-style-type: none"> <li>ADOPT: SQL (ISO/IEC)</li> <li>SITUATIONAL: Substrait (LF)</li> <li>SITUATIONAL: SPARQL (W3C)</li> <li>SITUATIONAL: GQL (ISO/IEC)</li> <li>CAUTION: MDX (MICROSOFT)</li> </ul>	<b>DATA QUALITY</b> (3) <ul style="list-style-type: none"> <li>SITUATIONAL: Great Expectations (GX LABS)</li> <li>SITUATIONAL: dbt tests (DBT LABS)</li> <li>SITUATIONAL: SodaCL (SODA)</li> </ul>	<b>OBSERVABILITY</b> (2) <ul style="list-style-type: none"> <li>ADOPT: Open Telemetry (CNCF)</li> <li>ASSESS: OORS (BITOL @ LF)</li> </ul>	<b>POLICIES</b> (2) <ul style="list-style-type: none"> <li>ADOPT: OPA (CNCF)</li> <li>ASSESS: W3C ODRL (W3C)</li> </ul>	<b>AI INTERFACES</b> (2) <ul style="list-style-type: none"> <li>ADOPT: MCP (LF)</li> <li>SITUATIONAL: A2A (LF)</li> </ul>
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