



Joint Bank Reporting Committee

Terms and definitions relevant for integrated reporting

In line with the Charter of the Joint Bank Reporting Committee (JBRC)¹, one of the tasks of the committee in relation to integrated reporting is the promotion and provision of advice as regards the use of common definitions. The *Terms and definitions relevant for integrated reporting* serves as a reference document for a common terminology to be used by all stakeholders in the field of integrated reporting. It aims to ensure that a common language is used in the reporting from banks to authorities and when working with supervisory, resolution and statistical data in general.

The document comprises terms and definitions related to data modelling and data production. When relevant, it makes references to existing definitions that can be found for instance in already established glossaries and standards. The *Terms and definitions relevant for integrated reporting* is owned by the JBRC and published on the JBRC webpages.² It is a living document, and the JBRC, through its substructures, will maintain the document and update it when needed, seeking input from other relevant structures (e.g. DPM Alliance) when necessary.

¹ See the Memorandum of Understanding on the establishment of the Joint Bank Reporting Committee: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=IMMC:MOU/2024/03181>.

² The document was initially part of a set of terms and definitions prepared by the ESCB Working Group on Integrated Reporting and Data Dictionary (WG IRDD).

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1. Data, Data Dictionary and Data models

<i>Term</i>	<i>Definition</i>	<i>Example(s)</i>	<i>Known synonym(s)</i>	<i>Source/Links</i>	<i>Remarks</i>
Data	Data is a collection of discrete values that convey information, describing quantity, quality, fact, statistics, or other basic units of meaning.				
Metadata	Metadata is data that defines and describes other data. Metadata is hence data that provides information about other data, but not the content of the data itself.	See Annex 2: for a possible way of categorising metadata.	SDMX: Structural metadata & Reference metadata	OECD Glossary of Statistical Terms	
Data element	A data element is a unit of data for which the definition, identification, representation, and permissible values are specified by means of metadata .		SDMX: Statistical variable	OECD Glossary of Statistical Terms	
(Data) granularity	(Data) granularity refers to the size that data elements are divided into, in short how detail-oriented a single element is.	Data can be collected on granular and aggregated level. Aggregated data is, e.g., generated by summing up granular data.			The analogue term for metadata is detailing or decomposing metadata concepts. The term granularity is not used for meta data as it has a different meaning.
Model	A model is an abstraction of phenomena in the real world. It provides an informative representation of things of interest.				
Data model	A data model is a graphical and/or lexical representation of data , specifying their properties, structure, and inter-relationships. A data model hence organises elements of data and standardises how they relate to one another. It determines the structure of data.			OECD Glossary of Statistical Terms	A data model may be specified/described by a Meta (data) model .

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
Meta (data) model	<p>A meta model is a model of/for a (data) model.</p> <p>A meta (data) model is a data model that specifies/describes (the structure of) one or more other data models.</p> <p>A meta (data) model hence provides a framework for understanding the important metadata (e.g., tables/entities, domains, members) that needs to be captured when describing data.</p> <p>An agreement on a common meta data model is called syntactic integration. A meta data model is the core component of a data dictionary.</p>	<p>SMCube Metadata Model</p> <p>SDMX Information Model,</p> <p>DPM metamodel</p>	Information model, Metamodel, Meta-Model	OECD Glossary of Statistical Terms	The term DPM can refer to at least three different facets, the DPM syntactic layer , the semantic layer , or the methodology followed to define unique data elements .
Relational modelling	<p>Relational modelling is a data modelling technique whose objective is to have an exact description of the data organising it in ways that it can be efficiently stored and related.</p> <p>It organises data into tables (relations), columns (attributes) and rows (tuples), with a unique key (primary key) identifying each row. Tables can be associated by adding a column that refers to the primary key of another table (foreign key) defining the different possible relationships between tables.</p> <p>The results of relational modelling are often depicted by means of an entity relationship model.</p>				
Dimensional modelling	<p>Dimensional modelling is a data modelling technique that captures business questions focused on a particular business need. The data is usually structured to optimise the query and analysis of large amounts of data.</p>				

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
	Dimensional modelling uses the concepts of facts (measures), and dimensions (context). Facts are typically (but not always) numeric values that can be aggregated along dimensions, which are groups of multiple hierarchies and descriptors that define the facts.				
Entity relationship model	<p>An entity relationship model (ERM) is a form of notation used in data modelling.</p> <p>It is used mainly in relational modelling to represent a data model in a standardised way. It is a representation of data elements that can be particularly helpful in designing a relational database.</p> <p>A basic entity relationship model is composed of entity types (which classify the things of interest) and specifies relationships that can exist between these entities. As such, it depicts the data in terms of these entities and relationships. An ERM is hence used to represent structured data.</p>		ERM, entity-relationship diagram, ER diagram, ERD		
Data dictionary	<p>A data dictionary is a common “container” for metadata. More precisely, a data dictionary is in general</p> <ul style="list-style-type: none"> • a convention/methodology on how to store metadata and as such • a meta (data) model for the (structured) storage of metadata (syntactic layer) together with • the (set of) IT tools storing the meta data in the structure as given by the meta data model. 				<p>Typically, the actual work on semantic integration, data integration and the integration of reporting is not part of a data dictionary.</p> <p>Nevertheless, the dictionary stores the results of the integration work (e.g., integrated terms, transformations, lineage,</p>

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
	It should be noted that a data dictionary is in general very use-case specific. Functionality and features it needs to support may vary widely and depend on the business case(s) it supports.				implementation models for integrated reporting requirements, etc.).

2. Levels of data modelling

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
Conceptual data model	<p>A conceptual data model is a data model providing a high-level overview of the structure of the data.</p> <p>It contains only the basic entity types of the domain being in scope of the data model with a (rough) description of each entity type and the relationships between these entity types. As such, it describes how the (most) relevant information is structured. This structure is derived from the ontology, and it decides which terms of the ontology become an entity type, an attribute, or a relationship type.</p> <p>The purpose of a conceptual data model is hence to define, scope and organise different data entities and the relationships between them, without focusing on their detailed characteristics.</p>	AnaCredit conceptual model	Conceptual model, Conceptual schema	OECD Glossary of Statistical Terms	See also Annex 1.
Logical data model	<p>A logical data model is a detailed representation of data requirements and is independent of any technology or specific implementation constraints. The design of a logical data model often begins as an extension of a conceptual data model as it represents the details on data elements and their relationships.</p>	Logical data model of BIRD	Logical model, representation model (in the context of the Integrated Reporting		

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
	<p>The purpose of a logical data model is hence to define and organise different data elements and the relationships between them, focusing on their detailed characteristics.</p> <p>The logical model – through a process of Normalisation – gives a more structured representation of entity types, their characteristics, and their relationship types than the conceptual model by adding attributes, cardinalities and identifying primary as well as foreign keys.</p>		Framework (IReF))		
Implementation model	<p>An implementation (data) model represents relational data objects (for example tables, columns, primary and foreign keys) and their relationships. It can be more close or more distant to the logical data model as it often takes into account the implementation needs or restrictions of (i) a technology/file structure (like CSV, XBRL, etc.) or (ii) a concrete database management system (DBMS).</p> <p>In case of IReF data, (i) is referring to the implementation model used in data exchange and is therefore the one relevant to reporting agents. In contrast, (ii) defines how received IReF data is stored within the authorities, with little importance for the reporting agents. Further implementation models can exist, e.g., for data exchange between NCBs or to store any products created from the IReF like Balance Sheet Items (BSI).</p> <p>The implementation model adds technical codes and datatypes to its objects, which can be generic or</p>		Technical implementation model (in the context of IReF), Reporting scheme (in the context of AnaCredit) for the data exchange implementation model		Note that some sources do not differ between the implementation model and its realisation (i.e., actual physical implementation) by means of a physical model as suggested in this set of terms and definitions and would hence name both the physical model.

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
	<p>already conform to a given DBMS or technology/file structure.</p> <p>An implementation (data) model can be used to generate Data Definition Language (DDL) statements which can then be consumed by a data base management system.</p>				
Physical model	<p>A physical model is a set of Data Definition Language (DDL) statements which can be consumed by the DBMS.</p> <p>It is the code to create the physical database corresponding to the implementation model.</p>		Physical data model, database schema		<p>Note that some sources do not differ between the implementation model and its realisation (i.e., actual physical implementation) by means of a Physical model as suggested in this set of terms and definitions and would hence name both the Physical model.</p> <p>For details see Annex 1.</p>

3. Normalisation

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
Normalisation	<p>Normalisation is the process of applying rules in order to organise business complexity into stable data structures. The basic goal of normalisation is to keep each attribute in only one place to eliminate redundancy and the inconsistencies that can result from redundancy.</p>				

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
Normalisation levels	<p>Normalisation levels group together normalisation rules, which are ordered from more basic to higher degrees of normalisation. These rules sort attributes in relations/tuples according to primary and foreign keys.</p> <p>Normalisation rules sort into levels, with each level applying granularity and specificity in search of the correct primary and foreign keys. Each level comprises a separate normal form and the process is progressive, i.e., higher level of database normalisation cannot be achieved unless the previous levels have been satisfied. If the first level is reached, the data model is said to be in “first normal form”.</p> <p>The term “normalised model” usually means the data is in third normal form.</p> <p>1st normal form (1NF): Ensures that each entity has a valid primary key, and every attribute depends on the primary key; removes repeating groups, and ensures that each attribute is atomic (not multi-valued). 1NF includes the resolution of many-to-many relationships with an additional entity often called an associative entity.</p> <p>2nd normal form (2NF): Ensures that each entity has the minimal primary key and that every attribute depends on the complete primary key.</p> <p>3rd normal form (3NF): Ensures that each entity has no hidden primary keys and that each attribute depends on no attributes outside the key.</p> <p>Boyce/Codd normal form (BCNF): Resolves overlapping composite candidate keys. A candidate</p>				<p>See https://en.wikipedia.org/wiki/Database_normalization for an example of a step-by-step normalisation.</p>

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
	key is either a primary or an alternate key. “Composite” means more than one (i.e., two or more attributes in an entity’s primary or alternate keys), and “overlapping” means there are hidden business rules between the keys.				
Denormalisation	Denormalisation is the deliberate transformation of a more normalised data model into a less normalised data model by violating normalisation rules (e.g., by adding redundant copies of data or by grouping data).				

4. Integration of reporting (syntactic, semantic and data integration)

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
Semantics	Semantics is originated in the branch of linguistic science and aims to describe the meaning of words. Semantics enable a common and easy understanding by human beings.			OECD Glossary of Statistical Terms	
Semantic layer	The semantic layer comprises a collection of terms and their definitions and all other references considered relevant. The semantic layer hence contains the definitions of data elements . A semantic layer exists for the data elements of the meta (data) model (e.g., definition of a domain, definition of a member) as well as for the data elements of the (described) data model (e.g., definition of a loan).		Semantic level		

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
	The semantics of a data element result from the concept(s) underpinning the terms used in their definition.				
Concept	Concept is a unit of knowledge created by a unique combination of characteristics (e.g., credit institution, central bank, accounting standard, IFRS).			ISO/IEC 11179	
Term	Term is a representation of a concept by a linguistic expression (e.g., the concept of credit institution can be represented by terms: 'entidad de crédito', 'Kreditinstitut', 'credit institution', ...).			ISO/IEC 11179	
Relation	Relation is the sense in which concepts may be connected, via constituent roles (e.g., cause – effect, part – whole).		Relationship	ISO/IEC 11179	
Level of detail (concepts)	Level of detail (concepts) refers to the specificity or generality of concepts and their arrangement in hierarchy of detail. Detailing is the first step to achieve decomposition . Decomposition further includes resolving lexical relationships so that the original term can be reconstructed (i.e., recomposed) from those constituent terms.		Level of abstraction		
Taxonomy	A taxonomy is a systematic arrangement of concepts from a specific legal source, framework, or policy, showing the relations between the concepts, especially one including a hierarchical arrangement of types in which categories of concepts are classified as subtypes of more abstract categories, starting from one or a small number of top categories, and				Note that “taxonomy” is used in SDMX and DPM in a slightly different sense (see statistical reporting taxonomy).

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
	descending to more specific types through an arbitrary number of levels.				
Ontology	<p>An ontology is the result of applying the process of semantic integration via decomposition to multiple taxonomies.</p> <p>An ontology is a systematic arrangement of all the important categories of concepts which exist in some field of discourse, showing the relations between them. When complete, an ontology is a categorisation of all the concepts in some field of knowledge, including the objects and all the properties, relations, and functions needed to define the concepts and specify their actions.</p> <p>In the ontology, when concepts need to be described vis-à-vis others, only the difference between them will be expressed, thus simplifying definitions.</p>	When the field of knowledge is regulatory reporting, it thus is the definitive integrated combination of the taxonomies that are created for each legal source, framework, or policy. A simplified ontology may contain only a hierarchical classification (a taxonomy) showing the type of subsumption relations between concepts in the field of discourse.			<p>It is the description of terms and their relations. There are no logical concerns addressed here like normalisation, validation, data integrity.</p> <p>An ontology may be visualised as an abstract graph with nodes and labelled arcs representing the objects and relations.</p>
Decomposition	In semantic analysis, decomposition is the process of resolving lexical relationships of concepts into its constituent components in such a way that the original	Breaking down the concept of “Collateral” into “Financial			The decomposition refers to the decomposition of metadata concepts . Data is not covered here. Important

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
	concept can be reconstructed (i.e., recomposed) from those constituent components (i.e., (sub-)concepts). This means that decomposed concepts can be fully re-composed from the more detailed concepts with no gaps. The decomposition is “complete”.	collateral”, “Real estate collateral” and “Other collateral”.			to note that the metadata can be decomposed, although data can still be on aggregated level.
Semantic integration via glossary	Semantic integration via glossary is the process and the result of analysing/assessing the definitions of terms from different taxonomies and consolidating the terms into one combined taxonomy which can be seen as a common glossary (i.e., a list of terms with meanings and (legal) references). The assessments and common glossary provide the basis for comparing concepts from different sources and possibly align them in cases where they match exactly or converge parts of concept definitions in cases with only slightly different concepts. It enables a way to identify how similar or different data elements are.				Note that this will not result in an ontology as described above, because the integration of the taxonomies is only done partially because the process as defined stops when a match can be made or partially made. It does not seem to take into account the terms and definitions referenced within the definitions.
Semantic integration via decomposition	Semantic integration via decomposition is the process of creating an ontology by decomposing the concepts of the taxonomies that are to be integrated, to the level that the resulting concepts are just specific enough to re-compose all concepts contained in all the taxonomies involved, but not more specific. This includes the establishment of relations between those resulting concepts. All concepts of the ontology are free of overlaps and redundancies i.e., “unambiguous”. The concepts of the ontology are just specific (i.e., “detailed”) enough (not				

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
	more, not less) to be able to (re-)compose all (i.e., “complete”) the concepts of the involved taxonomies out of the elementary concepts of the ontology. This corresponds to the "define once" principle.				
Syntax	Syntax is the structure of (statements or) elements in a (computer) language. It defines the way in which (linguistic) elements can be put together. As such it establishes a relationship among characters or groups of characters, independent of their meanings or the manner of their interpretation and use; the structure of expressions in a language, and the rules governing the structure of a language.			OECD Glossary of Statistical Terms	
Syntactic layer	The syntactic layer refers to the formal structure (and as such to the data model) that organises the (meta) data elements .		Syntactic level, data model		The syntactic layer does not include technical aspects, (e.g., exchange formats).
Syntactic integration	Syntactic integration is an agreement on a common (meta) data model . Syntactic integration is achieved by agreeing on a common convention and methodology on how to store metadata . This agreement typically encompasses a meta (data) model for the (structured) storage of metadata as well as the related (set of) IT tools storing the meta data in the structure given by the meta data model, i.e. a data dictionary .				
Data integration	Data integration is the process of combining and consolidating partly redundant data from multiple sources into a coherent and redundancy-free dataset based on a singular unified data model. Data				

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
	<p>integration is achieved by going to the necessary granular level, thus eliminating duplications and inconsistencies. Semantic integration is a prerequisite for data integration.</p> <p>Applying data integration by going more granular on reporting requirements results in integration of reporting.</p>				
Reporting integration / Integration of reporting	<p>Reporting integration is achieved by applying data integration on reporting requirements. Reporting requirements will then be reported in a unified, redundancy-free and granular - and as such integrated - manner.</p> <p>For the IReF collection layer, integration of reporting is achieved by requiring that all data elements regulated in the IReF Regulation are reported in a unified, redundancy-free and granular (and thus integrated) manner based on the IReF implementation model (which is derived from the IReF logical data model). As a consequence, aggregated values will have to be generated via transformation rules out of the integrated granular reporting layer.</p> <p>Once reporting integration has been achieved, the initial, non-integrated, partly redundant reporting requirements could be dismissed in order to reduce reporting burden.</p> <p>This corresponds to the “report once” principle.</p>	IReF collection layer			

5. Transformations

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
Transformation	A transformation is a description of a data manipulation operation that may be performed on data during compilation. We distinguish between conceptual transformations and technical transformations .				See also EBA Feasibility study (p.29), where a similar definition is used.
Conceptual transformation	A conceptual transformation is a transformation using a non-formal language, e.g., business description. Its purpose is the description of data manipulation for business users.	For non-fair valued financial assets: Carrying amount = Gross carrying amount (excluding accrued interest) + Accrued interest - Accumulated impairment + Fair value changes due to hedge accounting.			
Technical transformation	A technical transformation is a description of a transformation using a formal language. Its purpose is the description of data manipulation using the formal language applied in the implementation layer (e.g., SQL for relational databases, cypher query for Neo4j graph databases) and enabling digital processing and automation.	SELECT (fa.gross_carrying_amount + fa.accrued_interest - fa.accumulated_impairment + fa.accumulated_changes_due_to_hedge_accounting) as carrying			

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
		amount FROM financial_asset			
Extract transform & load (ETL)	Extract, transform & load (ETL) is a data pipeline used to collect data from one or more sources. It then transforms the data according to business rules, and it loads the data into a destination data store.	A batch job applying the above-described technical transformation.			

6. Data quality management

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
Data quality management (DQM)	Data quality management can be defined as a set of practices undertaken which ensures that data is fit for its intended purpose. This set of practices is undertaken throughout the process of handling data; from planning, defining, acquiring, producing, storing, analysing, and disclosing.				According to ISO 8000/61 DQM can be broken down into Data Quality <ul style="list-style-type: none"> - Planning - Control - Assurance - Improvement Therefore, some terms may sometimes be used interchangeably (e.g. data quality assurance).
(Data quality) business rule	(Data quality) business rules describe how data should exist in order to be useful and usable.	AnaCredit validation checks	data validation, data quality check,		

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
	<p>Formally, business rules are constraints (or conditions) on the data which are not incorporated into the data model and must hence be expressed separately.</p> <p>Constraints/conditions may be of deterministic nature (a violation indicates erroneous data with certainty → often referred to as “validation checks”) or of probabilistic nature (a violation indicates erroneous data with (high) probability → often referred to as “plausibility checks”).</p>	AnaCredit plausibility checks			
Conceptual business rule	<p>A conceptual business rule is a business rule that is described in non-formal language intended for business users.</p>	<p>Carrying amount must be greater or equal to zero.</p>			
Technical business rule	<p>A technical business rule is a business rule that is described using a formal language intended to be applied in the implementation layer by concrete systems or IT infrastructure.</p>	<pre>If (fa.carrying_ amount < 0) {throw new IllegalArgumentEx ception(The Carrying amount of a financial asset must be greater or equal to zero.)}</pre>			

7. Data collection/exchange

Term	Definition	Example(s)	Known synonym(s)	Source/Links	Remarks
(Technical) exchange format	An exchange format is a specification that describes, in sufficient detail, a technical interface to be used for data exchange.	XBRL taxonomy, xsd file (for XMLs), CSV with specification of columns	Interface specification, reporting format		See also EBA feasibility study (p.8), where a similar definition is used.
Data file with respect to (technical) exchange format	Data file with respect to (technical) exchange format is the (actual) data contained in file(s) created according to a certain (technical) exchange format .	XBRL instance, XML file, data in CSV			
Reporting requirement	A reporting requirement is a data element that must be reported according to one (or more) specific definition(s) (in most cases, enforced by legal acts).		Reporting obligation		
Regulatory integration	Regulatory integration is the process of combining and consolidating multiple reporting requirements within a singular legal act. This corresponds to the “regulate once” principle.				
Statistical reporting taxonomy	A statistical reporting taxonomy is a version of (a) data model(s) defining the (composition) structure of reporting requirements.		SDMX: Reporting Taxonomy DPM: Taxonomy		Note that “taxonomy” in the context of semantic integration has a different meaning (see taxonomy).

Annex 1: Levels of data modelling in detail

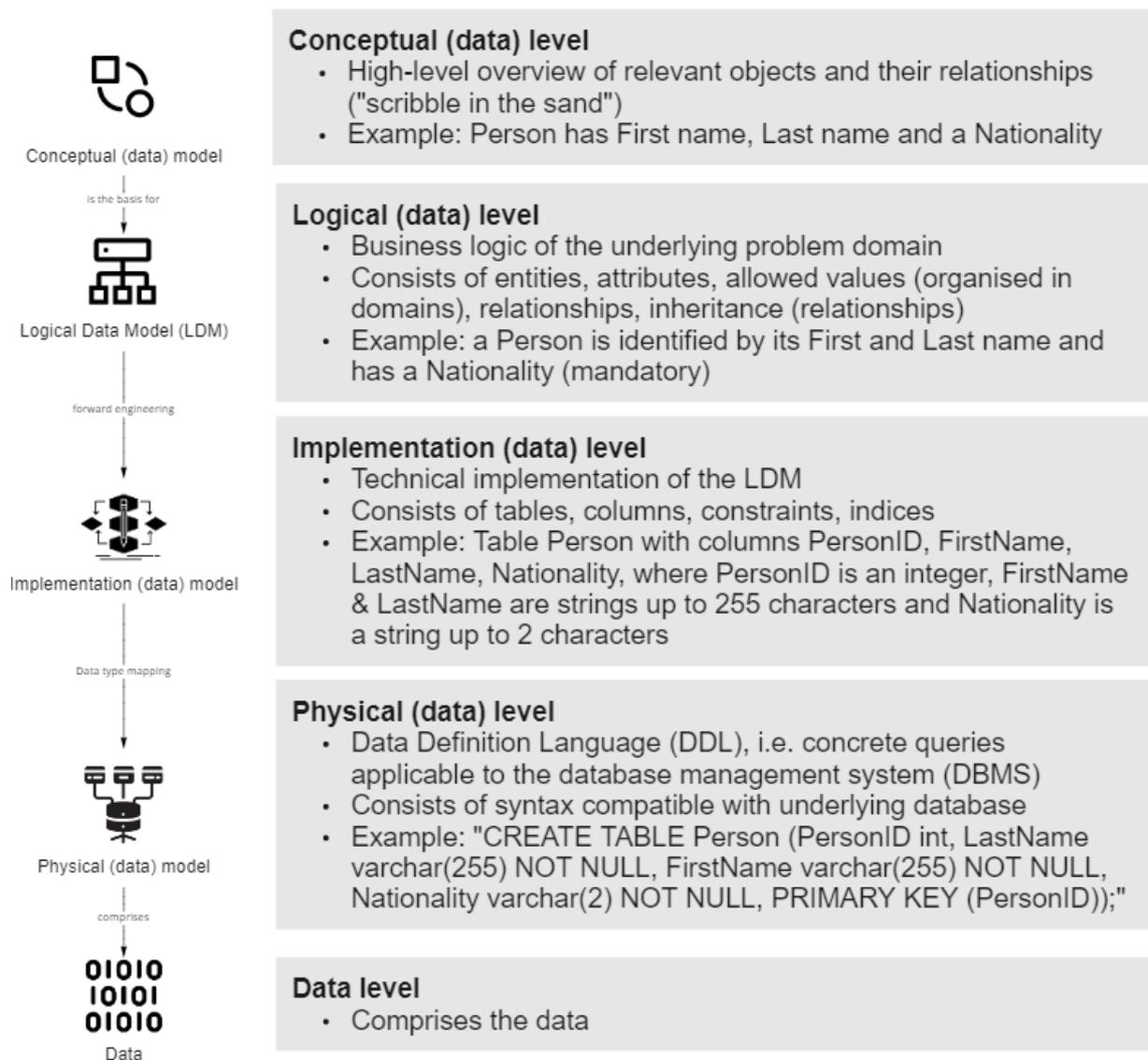


Figure 1: Levels of data modelling, source: WG IRDD

Annex 2: Metadata types and examples

Type	Definition	Example
Descriptive metadata	Descriptive metadata is metadata that describes a resource and enables identification and retrieval.	Name, description, ID, legal basis, data type
Structural metadata	Structural metadata is metadata that describes relationships within and among resources and their component parts.	Reporting template, hierarchies, parent/child relationships
Administrative metadata	Administrative metadata is metadata that is used to manage resources over their lifecycle.	Creator, version, access rights, confidentiality level
Operational metadata	Operational metadata is metadata that describes the operational aspects of the data, like when it was received, by whom, and from which reporter it was, how many errors there were, et cetera. (Note: this is to indicate operational metadata exists as it has come up in various discussion. It is not to be a mandatory part of a data dictionary for integrated reporting)	Logs of job execution; History of extracts and results; schedule anomalies; results of audit, balance, control measurements, Error logs, Backup, retention provisions, ...

Table 1: Metadata types and examples, source: [DAMA-DMBok](#).