

ETSI ES 204 114 V1.1.1 (2025-10)



**Access, Terminals, Transmission and Multiplexing (ATTM);
Meta-model entities/relationships opendthX
data/applications interoperability**

Document Preview

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Contents

Intellectual Property Rights	5
Foreword.....	5
Modal verbs terminology.....	5
Executive summary	5
1 Scope	7
2 References	7
2.1 Normative references	7
2.2 Informative references.....	8
3 Definition of terms, symbols and abbreviations.....	9
3.1 Terms.....	9
3.2 Symbols.....	12
3.3 Abbreviations	12
4 Introduction to the data interoperability format for connected buildings.....	13
5 Cases of information in the construction industry.....	13
5.1 Inventory of players involved in construction data exchange	13
5.2 Inventory of targeted use cases.....	14
5.3 Inventory of types of construction data exchanged	15
6 Lifecycle of an object as part of a construction project and its operation	17
6.1 Introduction to the Object Lifecycle in the BIM process	17
6.1.1 From Design to Operation: An Integrated Vision based on ISO 19650 Standards	17
6.1.2 A Structuring Duality: PIM and AIM	18
6.1.3 Progressive Maturation in PIM	18
6.1.4 The Specific Object as the Foundation of AIM	18
6.1.5 An integrated approach to optimizing the entire life cycle	18
6.2 The Evolution of BIM Objects in the PIM Cycle: From Conceptual to Concrete.....	19
6.2.1 Introduction.....	19
6.2.2 Progressive Information Maturation	19
6.2.3 Information continuity and traceability.....	19
6.2.4 A collaborative, multi-stakeholder approach	20
6.2.5 Conclusion: A Solid Foundation for the Full Life Cycle	20
6.3 The Generic Object Model (GOM)	20
6.3.1 Definition and role of the GOM.....	20
6.3.2 Property group structure	20
6.3.3 GOM Creation Process	21
6.3.4 Transition to Later Phases.....	21
6.3.5 The Importance of the GOM in the BIM Process	21
6.4 The Generic Object: Making Requirements a Reality in the BIM Process Lifecycle	22
6.4.1 From Abstraction to Concretization: The Evolution from GOM to Generic Object.....	22
6.4.2 Collaborative Enrichment by Different Actors	22
6.4.3 Property valuation mechanisms	22
6.4.4 Interdependency and arbitrage management.....	22
6.4.5 Position in the PIM Process	23
6.4.6 Transition to Later Phases.....	23
6.5 The Specific Object: Technical Realization in the BIM Process Lifecycle.....	23
6.5.1 Transition from Requirement to Concrete Solution.....	23
6.5.2 Dual Property Structure	23
6.5.3 Selection and Specification Process.....	24
6.5.4 Enrichment by Value Chain Actors	24
6.5.5 Manufacturer data integration.....	24
6.5.6 Managing variants and alternatives.....	25
6.5.7 Preparing the transition to AIM	25
6.5.8 Strategic position in the BIM process	25

6.6	The Role of the Specific Object in the AIM Phase	25
6.6.1	Transition from Specific Object to AIM	25
6.6.2	AIM Information Foundation	25
6.6.3	Enrichment and Evolution in AIM	26
6.6.4	Maintenance Operations Support	26
6.6.5	Contribution to Performance Analysis and Decision Making	26
6.6.6	Preparing for Renewal and Evolution	26
6.7	Conclusion: Towards integrated, continuous information management	27
6.7.1	Overview of the BIM Object Lifecycle Approach	27
6.7.2	Benefits an Integrated Approach	27
6.7.3	Challenges	27
6.7.4	Outlook	28
6.7.5	The New Horizon of Digital Construction	28
7	Data interoperability	28
7.1	Challenges	28
7.2	The advantages	28
7.3	The benefits of dynamic dictionaries for the specific use case of data exchange	29
8	Complementarities and synergies between opendthX and SAREF for connected buildings	29
8.1	Introduction	29
8.2	SAREF4BLDG Example	31
9	Semantic, organizational and technical interoperability	34
9.1	Semantic interoperability: The COPO method	34
9.2	Organizational interoperability: CIQO process	34
9.3	Technical interoperability	36
9.3.1	Language construction	36
9.3.2	IFC files: a first revolution in construction	36
9.3.3	IFC files have several essential characteristics:	36
9.3.4	File-based exchange: from XML to JSON-LD	36
9.3.5	API exchanges: fluidity and responsiveness	37
9.3.6	Converging and complementary approaches	37
9.3.7	Future prospects	37
9.3.8	Conclusion / opendthX meta-model	38
9.3.8.1	opendthX metamodel JSON v3.0	38
9.3.8.1.1	Schema:	38
9.3.8.1.2	Description of the datBIM v3 API	38
9.3.8.2	Open REST API of the opendthX JSON v4.0 meta model	42
9.3.8.3	opendthX meta model similar JSON LD self-discoverable V1.0	42
9.3.8.4	Summary diagram	43
9.3.9	OpenCDE	43
Annex A (informative):	Metamodel opendthX JSON-LD v1.0	47
Annex B (informative):	Schematics	52
Annex C (informative):	Bibliography	55
Annex E (informative):	Change history	56
History		57

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Foreword

This ETSI Standard (ES) has been produced by ETSI Technical Committee Access, Terminals, Transmission and Multiplexing (ATTM).

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Modal verbs terminology

In the present document **"shall"**, **"shall not"**, **"should"**, **"should not"**, **"may"**, **"need not"**, **"will"**, **"will not"**, **"can"** and **"cannot"** are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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Executive summary

The opendthX open meta-model is designed to ensure interoperability between digital content and construction industry software, enabling all parties involved in a construction project to contribute to the BIM process (see Figure B.1), in particular for:

- access to all types of content via all types of applications, regardless of the tools used;
- enriching objects for advanced collaborative construction;
- standardize input data in construction software avoid the GIGO effect (i.e. Garbage In → Garbage Out) (see Figure B.3);

- with the aim of creating a "CIQO-ready" collaborative environment: "Collaboration In → Quality Out" (see Figure B.2):
 - optimize data transfers using the concept of data on demand, thus meeting the need for digital sobriety;
 - establish digital continuity throughout the lifecycle of the project: design-construction-operations, including the use of connected objects.

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1 Scope

The present document presents the opendthX entity/relationship meta-model for interoperability between data and applications.

The purpose of the present document is to establish a framework to ensure interoperability between digital content and software applications in the construction industry. It aims to facilitate access to various types of content through different applications, regardless of the tools used, thereby promoting advanced collaborative construction practices. The standard aims to standardize input data to construction software in order to avoid the "Garbage In Garbage Out" (GIGO) effect, by ensuring that quality input data and applications result in quality output data.

The main objectives are to optimize data transfers through the concept of data on demand, which promotes digital sobriety, and to establish digital continuity throughout the lifecycle of construction projects, from design and construction to operation, including the use of connected objects. The standard introduces the opendthX open meta-model, designed to enable seamless interoperability and collaboration between all stakeholders in a construction project.

In addition, the standard addresses the integration of semantic, organizational and technical interoperability, providing methodologies and frameworks such as the use Cases-use Objects-Properties-modelled Objects (COPO) method for semantic interoperability and the Collaboration In Quality Out (CIQO) process for organizational interoperability. It also covers technical aspects such as the context for using IFC files, JSON-LD and APIs for efficient data exchange.

Overall, the standard aims to improve the efficiency, sustainability and adaptability of the construction sector by harnessing the full potential of the digital transformation from appli-centrism to open data-centrism through data-application interoperability.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found in the [ETSI docbox](https://standards.iteh.ai/catalog/standards/etsi/25051909-50b4-4a81-bffe-666953763071/etsi-es-204-114-v1-1-1-2025-10).

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long-term validity.

The following referenced documents are necessary for the application of the present document.

- [1] [ETSI TS 103 673](#): "SmartM2M; SAREF Development Framework and Workflow, Streamlining the Development of SAREF and its Extensions".
- [2] [ISO 16739-1:2024](#): "Industry Foundation Classes (IFC) for data sharing in the construction and facilities management industries — Part 1: Data schema".
- [3] [ISO 23386:2020](#): "Building information modelling and other digital processes used in construction — Methodology to describe, author and maintain properties in interconnected data dictionaries".
- [4] [ISO 19650 \(all parts\)](#): "Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) — Information management using building information modelling".
- [5] [ETSI TS 103 548](#): "SmartM2M; SAREF reference ontology patterns".
- [6] buildingSMART: "[Industry Foundation Classes \(IFC\) - Version 4 - Addendum 1](#)".
- [7] [ETSI TS 103 410-3 \(V1.1.1\)](#): "SmartM2M; Smart Appliances Extension to SAREF; Part 3: Building Domain".