The Standards People

ETSI MTS Open Session on

TTCN-3 new major release

Presented by: **TTF T056**

For: **TTCN-3 experts**

14.10.2026

© ETSI 2026

Agenda

1. Welcome and review of the Open Sessions
2. New structure for TTCN-3 language specification
3. Working approach
4. Current status of work
5. Questions/Discussion with participants
6. Next steps



© ETSI 2026



Welcome and review of the Open Sessions

© ETSI 2026

Motivation and history (1)

- **TTCN-3 workshop 23. January 2024 (TTF T032)**
- **Questionnaire started with TTF T040 in summer 2024**
- **TTCN-3 Open Session 9. September 2024 (TTF T040)**
- **TTF working session in November 2024**
- **TTCN-3 Open Session 28. January 2025**
- **TTF working session in March 2025**



© ETSI 2026

Motivation and history (2)

- **TTF presentation at UCAAT in April 2025**
- **TTCN-3 Open Session 20. May 2025**
- **TTF working session in September 2025**
- **TTCN-3 Open Session 21. October 2025**
- **TR 104 081: Guide for the Migration to TTCN-3 V5**
  - **Final draft endorsed by MTS (2026-01-05)**
  - **Publication in April 2026**



© ETSI 2026

Motivation and history (3)

- **Current TTCN-3 TTF T056** was set up Jan/Feb 2026
- **TTCN-3 Open Session 18. February 2026**
- **TTF working session in March 2026**
- **TTCN-3 Open Session 3. June 2026**
- **TTF working session in June 2026**
- **TTCN-3 Open Session 14. October 2026**
- **TTF working session in October 2026**



© ETSI 2026



New structure for TTCN-3 language specification

© ETSI 2026

New structure for TTCN-3 language specification

Deliverables from ToR of TTF T056

Deliv.	Work Item code Standard number	Working title	Expected date for publication
D1	ETSI ES 201 873-1	TTCN-3 Core Language (Major Revision)	2027-02
D2	ETSI ES 201873-12	TTCN-3 Extensions (Major Revision)	2027-07
D3	ETSI ES 201873-13	TTCN-3 TRI and TCI (Major Revision)	2027-07
D4	ETSI ES 201 873-7	Using ASN.1 with TTCN-3	2027-02
D5	ETSI ES 201 873-9	Using XML schema with TTCN-3	2027-02
D6	ETSI ES 201 873-10	TTCN-3 Documentation Comment Specification	2027-02
D7	ETSI ES 201 873-11	Using JSON with TTCN-3	2027-02

© ETSI 2026

New structure for TTCN-3 language specification

Deliverables from ToR of TTF T056

Deliv.	Work Item code Standard number	Working title	Expected date for publication
D8	TR 104 081	Guide for the Migration to TTCN-3 *(update)*	**2027-02**
D9	TR 104 873	TTCN-3 Semantics Description (new)	2027-07

© ETSI 2026

New structure for TTCN-3 Conformance Tests for TTCN-3 Tools

Deliverables from ToR of TTF T056

Deliv.	Work Item code Standard number	Working title	Expected date for publication
D10	TS 102950-1	Methods for Testing and Specification (MTS); TTCN-3 **Conformance Test Suite**; Part 1: Implementation Conformance Statement (ICS)	2027-07
D11	TS 102950-2	Methods for Testing and Specification (MTS); TTCN-3 **Conformance Test Suite**; Part 2: Test Suite Structure and Test Purposes (TSS&TP)	2027-07
D12	TS 102950-3	Methods for Testing and Specification (MTS); TTCN-3 **Conformance Test Suite**; Part 3: Abstract Test Suite (ATS) and Implementation eXtra Information for Testing (IXIT)	2027-07
D13	TS 103253	Methods for Testing and Specification (MTS); TTCN-3 Conformance Test Suite for use of **XML and JSON** schema; Part 1: Implementation Conformance Statement	2027-07
D14	TS 103254	Methods for Testing and Specification (MTS); TTCN-3 Conformance Test Suite for use of **XML and JSON** schema; Part 2: Test Suite Structure and Test Purposes (TSS&TP)	2027-07
D15	TS 103255	Methods for Testing and Specification (MTS); TTCN-3 Conformance Test Suite for use of **XML and JSON** schema; Part 3: Abstract Test Suite & IXIT	2027-07
D16	TS 104240-1	Methods for Testing and Specification (MTS); Conformance Test Suite for TTCN-3 Language **Extensions**; Part 1: Implementation Conformance Statement (ICS)	2027-07
D17	TS 104240-2	Methods for Testing and Specification (MTS); Conformance Test Suite for TTCN-3 Language **Extensions**; Part 2: Test Suite Structure and Test Purposes (TSS&TP)	2027-07
D18	TS 104240-3	Methods for Testing and Specification (MTS); Conformance Test Suite for TTCN-3 Language **Extensions**; Part 3: Abstract Test Suite (ATS) and Implementation eXtra Information for Testing (IXIT)	2027-07

© ETSI 2026

Migration guide remains base for TTF work

- ETSI (TC MTS) published **TR 104 081**:
  Guide for the Migration to TTCN-3 V5
- You may download the free PDF version using https://www.etsi.org/deliver/etsi_tr/104000_104099/104081/05.01.01_60/tr_104081v050101p.pdf



© ETSI 2026



Working approach

© ETSI 2026

TTF Agreements for new text (selection 1/2)

- **Table of Contents** (order): *General order* should be *kept*, some language elements may be put to some other place
- **Section structure** (*introductory* description, *syntactical* structure, *semantic* description, *restrictions*, *examples*) should be kept. For long clauses, examples may also be inlined.
- **BNF terms** in syntactical structure should be *reused* in the text. (section “Syntactical structure” should be in sync with BNF)
- **Highlighting** of language elements need to clarified.
- *Check*/*reduce* **interference** of **restrictions**

© ETSI 2026

TTF Agreements for new text (selection 2/2)

- **Examples**:
  - Examples in one chapter should be *self-contained*
  - *Coverage* of examples should be *sufficient*
  - Always *explain* examples
  - Simple *naming conventions* should be followed
- Harmonization/extension of **terms** and **definitions**
- **BNF** discussion:
  Working assumption: *one* BNF for Core and extensions
- **Keywords**/reserved words: *One* list for extensions and Core

© ETSI 2026

Agreement on language mapping extensions

No technical changes for language mappings (parts 7, 9, 10, 11)

ETSI ES 201 873-7	Using ASN.1 with TTCN-3
ETSI ES 201 873-9	Using XML schema with TTCN-3
ETSI ES 201 873-10	TTCN-3 Documentation Comment Specification
ETSI ES 201 873-11	Using JSON with TTCN-3

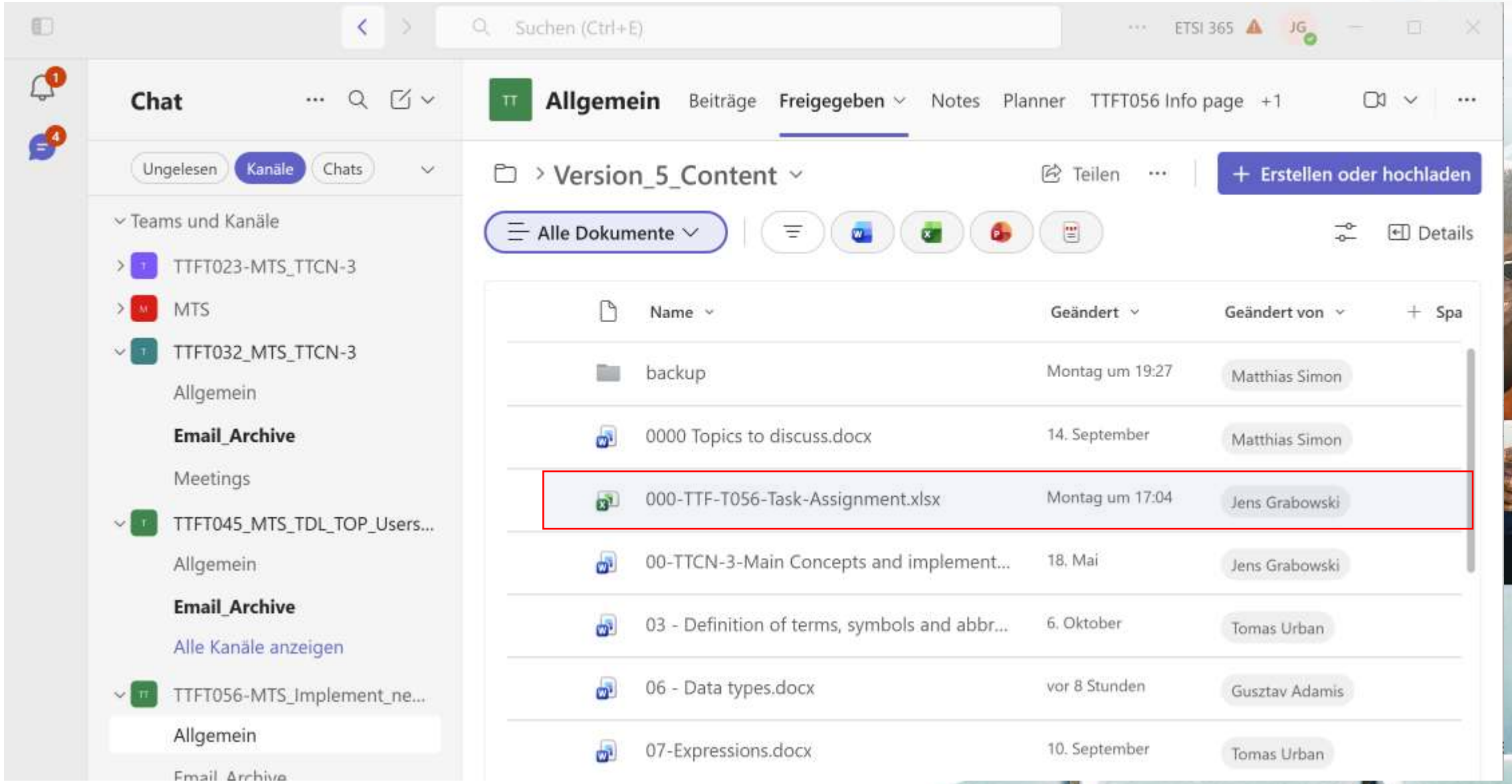
© ETSI 2026



Current status of work

© ETSI 2026

Working Process – Teams-Workspace



Distribution of work (1)

Chapter Number	&	Title	Status	Editor	Reviewer	Notes
	3	Definition of terms, symbols and abbreviation	**work in progress**			
	4	Introduction				
5.x		TTCN-3 concepts and execution semantics	**work in progress**	**Jens**		Early Draft available
	5	Basic language elements	**work in progress**	**Matthias**		
	5.1	Identifiers and keywords	**to be reviewed**	**Axel**		Move to annex A
	5.2	Scope rules				
	5.3	Ordering of language elements				
	5.4	Parameterizaton				Move to clause 16
	5.5	Cyclic Definitions				
	6	Types and values	**to be reviewed**	**Gusztav**	**Jens**	Draft finished (Gusztav) 2nd version
	6.1	Basic types and values			**Tomas**	**Second review**
	6.2	Structured types and values				
	6.3	Type compatability				
	6.4	Type synonym				
	6.5	Automatic type				Moved to clause on variables
	7	Expressions	**review available**	**Tomas**	**Gusztav**	Reviewed again after re-adding shift/ro
	7.1	Operators			Matthias	
	7.2	Field references and list elements	**review available**		**Jens**	



Distribution of work (2)

Number & Title	Status	Editor	Reviewer	Notes
5.x TTCN-3 concepts and execution semantics	**to be reviewed**	**Jens**		Early Draft available
5 Basic language elements	**work in progress**	**Matthias**		
6 Types and values	**to be reviewed**	**Gusztav**	**Jens**	Draft finished (Gusztav) 2nd v
6.1 Basic types and values			**Tomas**	**Second review**
7 Expressions	**review available**	**Tomas**	**Gusztav**	Reviewed again after re-adding sh
8 Modules	**review available**	**Jens**	**Gusztav**	Gusztav will check the handling o
8.2.1 Declaring Module Parameters	**open**	**Matthias**	Gusztav	To be moved into a new clause or
9 Port types, component types and test configu	**assigned**	**Jens**		to be moved to general chapter
10 Declaring constants	**work in progress**	**Matthias**		
11 Declaring variables	**work in progress**	**Matthias**		
12 Declaring timers				to be integrated within chapter 2
13 Declaring messages				to be moved to general chapter



Distribution of work (3)

Number & Title	Status	Editor	Reviewer	Notes
12 Declaring timers				to be integrated within chap
13 Declaring messages				to be moved to general chap
14 Declaring procedure signatures				to be moved to extensions
15 Declaring templates	review available	Tomas	Gusztav	
	review available		Jens	
	to be reviewed		Gusztav	new 15.6 has to be reviewed
16 Functions, altsteps and test cases	work in progress	Matthias	Gusztav	
19 Basic program statements		Matthias	Gusztav	external action to be moved
20 Statement and operations for alternative beh	review available	Gusztav	Jens	
21 Configuration operations	review available	Gusztav	Jens	Apart from one or two comm
22 Communication operations	review available	Gusztav	Jens	Appart from one small issue
23 Timer operations	technically complete	Gusztav	Jens	The section is apart from ver



Distribution of work (4)

Number & Title	Status	Editor	Reviewer	Notes
24 Test verdict operations	**review available**	**Jens**	**Gusztav**	To be checked if there
25 External actions				to be moved to chapte
26 Module control	**review available**	**Jens**	**Gusztav**	
27 Specifying attributes	**to be reviewed**	**Tomas**	**Gusztav**	
Annex A (normative): BNF and static semantics	**work in progress**	**Matthias**		
Annex B (normative): Matching values				Moved to Clause 15
Annex C (normative): Predefined TTCN-3 functions lengtof sizeof	**assigned**	**Gusztav**		
Annex D (normative): Preprocessing macros	**assigned**	**Tomas**		unchanged (see univ
Annex E (informative): Library of Useful Types	**assigned**	**Tomas**		(see univ



Details on selected clauses

Number & Title	Status	Editor	Reviewer	Notes
6 Types and values	**to be reviewed**	**Gusztav**	**Jens**	Draft finished (Gusztav) 2
6.1 Basic types and values			**Tomas**	**Second review**
15 Declaring templates	**review available**	**Tomas**	**Gusztav**	
	review available		**Jens**	
	to be reviewed		**Gusztav**	new 15.6 has to be reviewed



Types and values

Modified Structure of clause 6 Types and values

- 6 Types and values
  - 6.0 General
  - 6.1 Basic types and values
  - 6.2 Structured types and values
  - 6.3 Enumerated type and values
  - 6.4 Type synonym
  - 6.5 The address types
  - 6.6 The open type
  - 6.7 Compatibility of values of different data types
  - 6.8 TTCN-specific, test-related types and references
  - 6.9 Compatibility of references



Types and values

- 6.1 Basic types and values
  - 6.1.0 General
  - 6.1.1 Simple basic types and values
    - 6.1.1.1 Integer type and values
    - 6.1.1.2 Float type and values
    - 6.1.1.3 Boolean type and values
  - 6.1.2 Test-related simple types and values
    - 6.1.2.1 Verdicttype type and values
  - 6.1.3 Binary string types and values
    - 6.1.3.0 General
    - 6.1.3.1 Bitstring type and values
    - 6.1.3.2 Hexstring type and values
    - 6.1.3.3 Octetstring type and values
    - 6.1.3.4 Usage of white spaces and control characters in binary string values
  - 6.1.4 Character string types and values
    - 6.1.4.0 General
    - 6.1.4.1 String type and values
    - 6.1.4.2 Charstring type and values
  - 6.1.5 Accessing individual string elements
  - 6.1.6 Subtyping of basic types
    - 6.1.6.0 General
    - 6.1.6.1 Lists of templates
    - 6.1.6.2 Lists of subtypes
    - 6.1.6.3 Ranges
    - 6.1.6.4 Length restrictions of string types
    - 6.1.6.5 Pattern subtyping of character string types
    - 6.1.6.6 Mixing subtyping mechanisms
      - 6.1.6.6.1 Mixing patterns, lists and ranges
      - 6.1.6.6.2 Using length restriction with other constraints



© ETSI 2026

Types and values

2 Structured types and values

6.2.0 General

6.2.1 Record and set type and values

6.2.1.0 Definition of record and set types

6.2.1.1 Definition of record and set values

6.2.1.1.1 Using assignment notation for defining of record and set values

6.2.1.1.2 Using value list notation for defining of record and set values

6.2.1.1.3 Using mixed notation for defining of record and set values

6.2.1.2 Referencing fields of a record and a set type

6.2.1.3 Nested type definitions for field types

6.2.2 Records and sets of elements of the same type

6.2.2.0 Definition of record of and set of types

6.2.2.1 Definition of record of and set of values

6.2.2.1.1 Using index notation for accessing elements of record of and se...

6.2.2.1.2 Using assignment notation for defining of record of and set of...

6.2.2.1.3 Using value list notation for defining of record of and set of val...

6.2.2.1.4 Using mixed notation for defining of record of and set of values

6.2.2.2 Arrays

6.2.2.3 Nested type definitions

6.2.2.4 Referencing the type of the elements of record of and set of types



Types and values

- 6.2.3 Unions
  - 6.2.3.0 General
  - 6.2.3.1 Definition of union values
  - 6.2.3.2 Referencing fields of a union type
  - 6.2.3.3 Nested type definition for union field types
  - 6.2.3.4 The anytype
- 6.2.4 Map types
  - 6.2.4.0 General
  - 6.2.4.1 Map Type Definition
  - 6.2.4.2 Definition of map values
  - 6.2.4.3 Unmapping Keys
  - 6.2.4.4 Index Notation
  - 6.2.4.5 Accessing the Keys of a Map
  - 6.2.4.6 Accessing the Values of a Map
  - 6.2.4.7 Referencing of Elements of a Map
  - 6.2.4.8 Nested type definitions
  - 6.2.4.9 Optionality of map elements
- 6.2.5 Subtyping of structured types
  - 6.2.5.0 General
  - 6.2.5.1 Length subtyping of record of and set of types
  - 6.2.5.2 List subtyping of structured types
  - 6.2.5.3 Subtyping of the type of the elements of record of and set of types
  - 6.2.5.4 Mixing subtyping mechanisms



© ETSI 2026

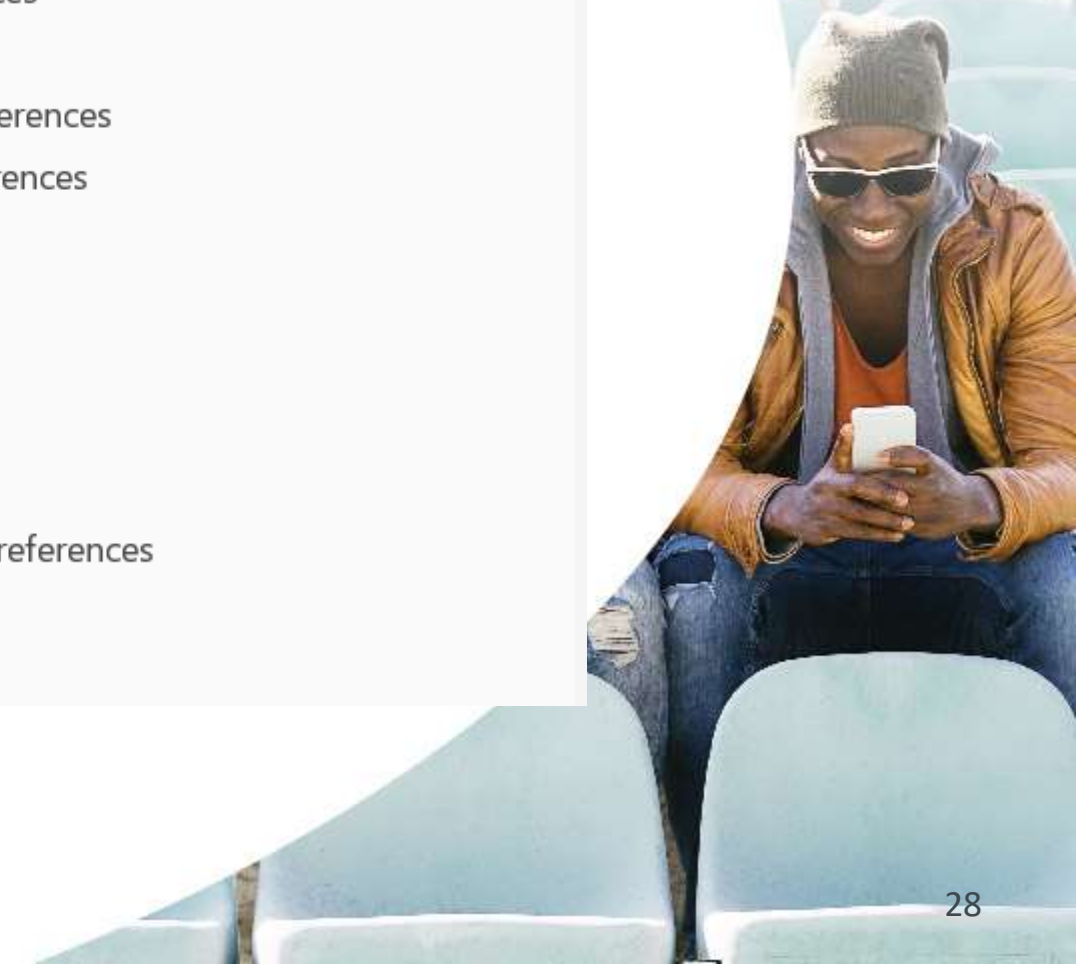
Types and values

- 6.3 Enumerated type and values
  - 6.3.0 General
  - 6.3.1 Subtyping of enumerated type
- 6.4 Type synonym
- 6.5 The address types
- 6.6 The open type
- 6.7 Compatibility of values of different data types
  - 6.7.0 General
  - 6.7.1 Compatibility of values of basic types
  - 6.7.2 Compatibility of values of structured types
  - 6.7.3 Compatibility of values of enumerated types
  - 6.7.4 Compatibility of values of the address types
  - 6.7.5 Type compatibility of communication and connection operations
  - 6.7.6 Type conversion
  - 6.7.7 Compatibility of values of the open type



Types and values

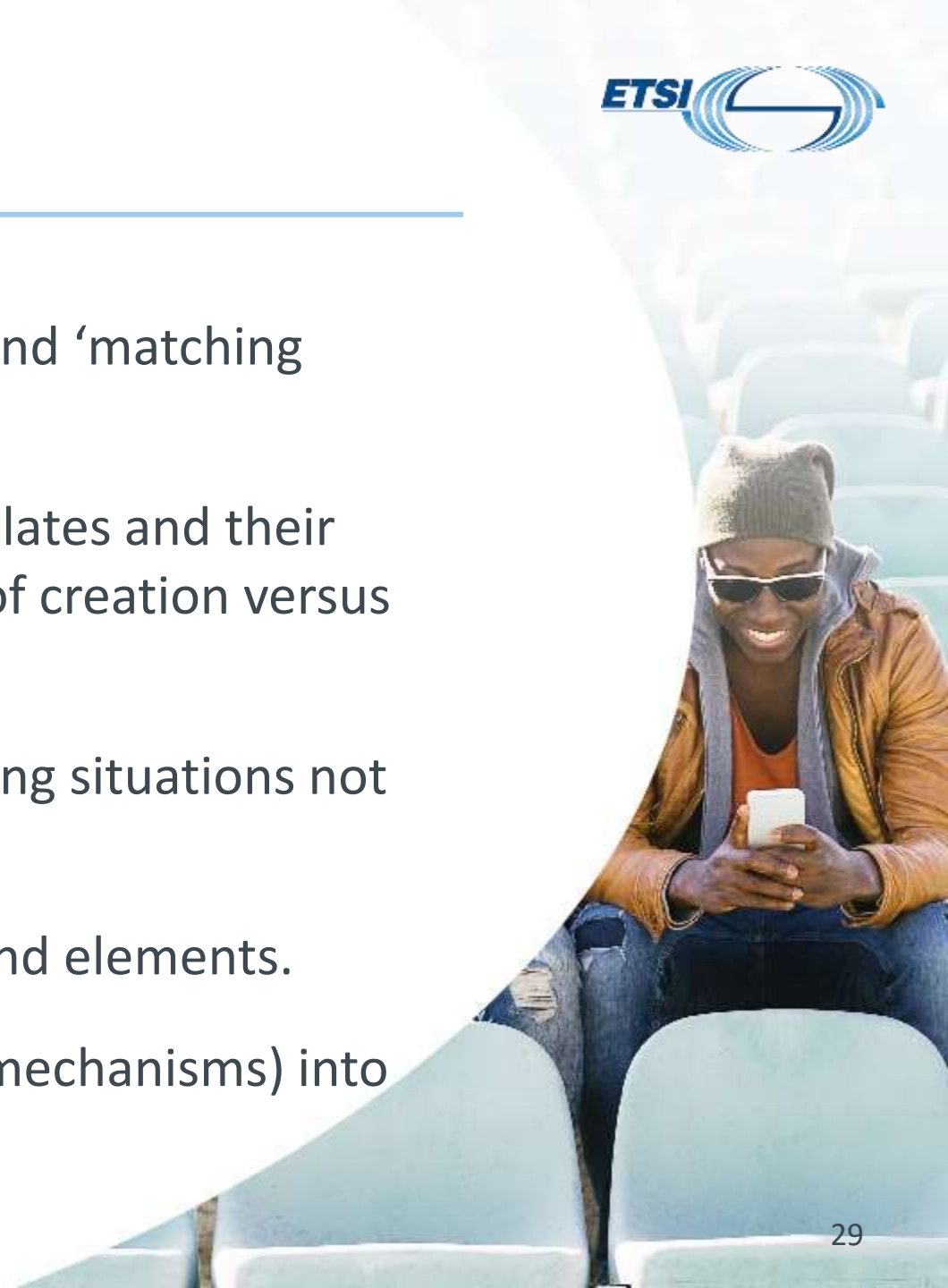
- 6.8 TTCN-specific, test-related types and references
  - 6.8.0 General
  - 6.8.1 Communication port types and port references
  - 6.8.2 Component types and component references
  - 6.8.3 The timer type and timer references
  - 6.8.4 The default type and default references
- 6.9 Compatibility of references
  - 6.9.0 General
  - 6.9.1 Compatibility of port references
  - 6.9.2 Compatibility of component types and references
  - 6.9.3 Compatibility of timer references
  - 6.9.4 Compatibility of default references



© ETSI 2026

Templates and matching mechanisms

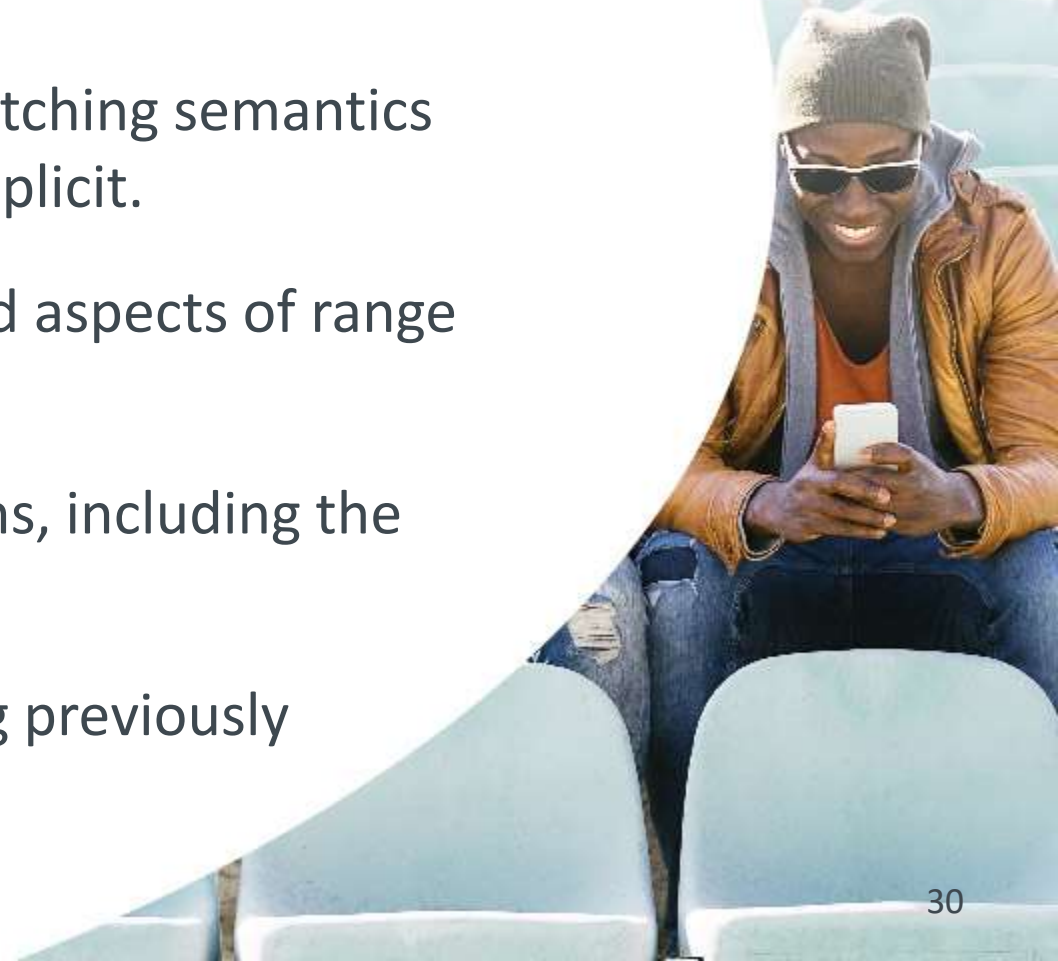
- Introduction the terms ‘template’ (placeholder) and ‘matching mechanism’ (content)
- Precise definitions of constant and dynamic templates and their evaluation models: evaluation once at the point of creation versus repeated evaluation at the point of use.
- Additional rules for template modification, covering situations not explicitly addressed previously.
- Systematic rules for referencing template fields and elements.
- Integration of the content of Annex B (matching mechanisms) into clause 15.



© ETSI 2026

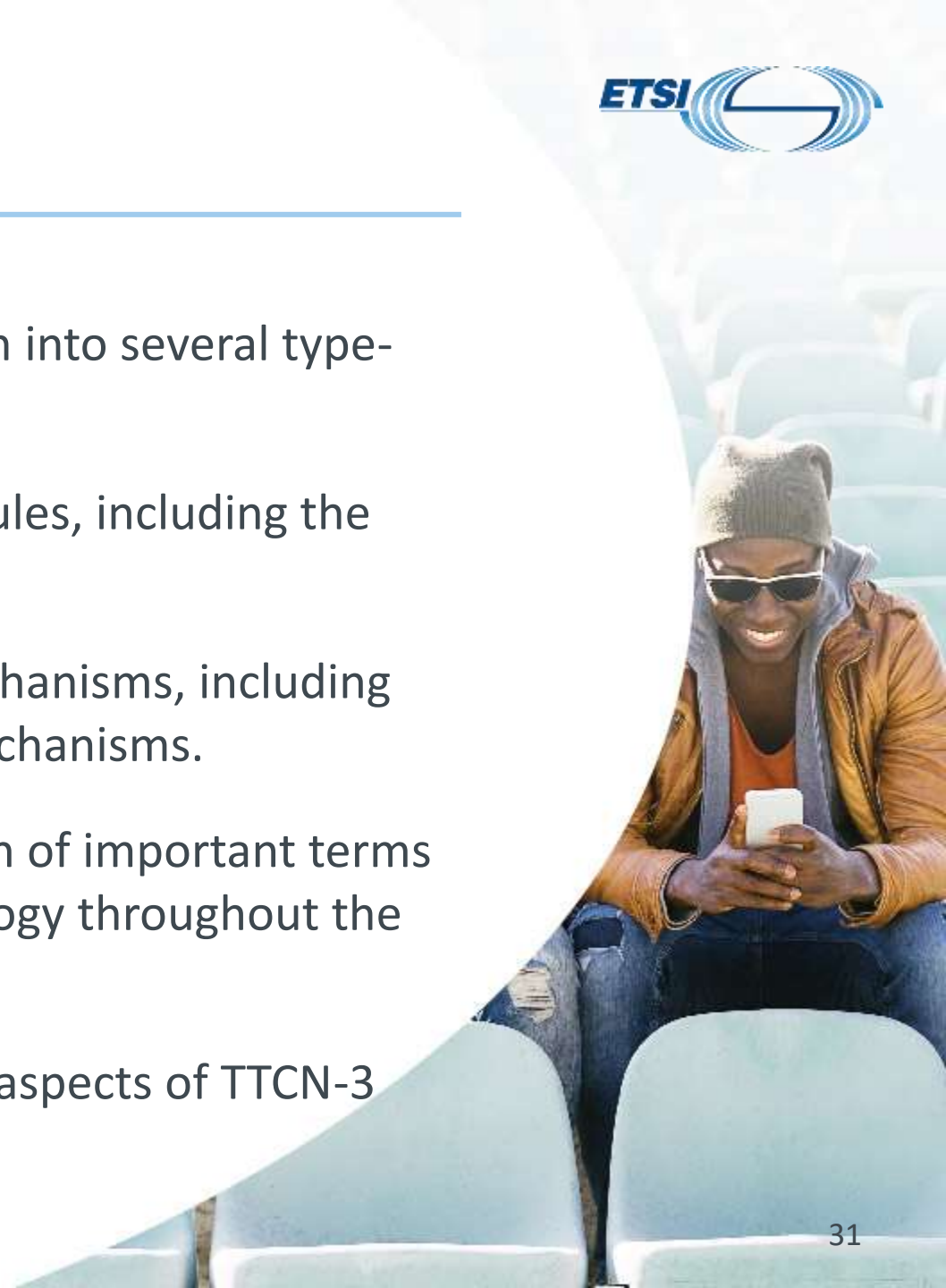
Templates and matching mechanisms

- Explicit rules governing the use of the all from clause within matching mechanisms.
- Explicit matching conditions added where the matching semantics were previously insufficiently specified or only implicit.
- Additional rules addressing previously unspecified aspects of range matching mechanisms.
- Detailed rules for combined matching mechanisms, including the matching of set of values.
- Additional rules for matching attributes, clarifying previously unspecified behaviour.



Templates and matching mechanisms

- Restructuring of the clause on template concatenation into several type-specific subclauses.
- Clarification of template restrictions and conversion rules, including the semantics of the .present operation.
- Revised classification and definitions of matching mechanisms, including precise criteria for identifying combined matching mechanisms.
- Terminology improvements, including the introduction of important terms in clause 3 and consistent use of established terminology throughout the text.
- Additional examples, many illustrating more complex aspects of TTCN-3 semantics.





Questions/ Discussion

© ETSI 2026



Next steps

© ETSI 2026

Timeline for TTCN-3 Version 5.x Development

2024 2025 2026 2027

ETSI TTF T040

- Analysis of Current State
- TTCN-3 Migration Guide

ETSI TTF T056

- **TTCN-3 Standard Implementation**
- **Update of TTCN-3 conformance tests**



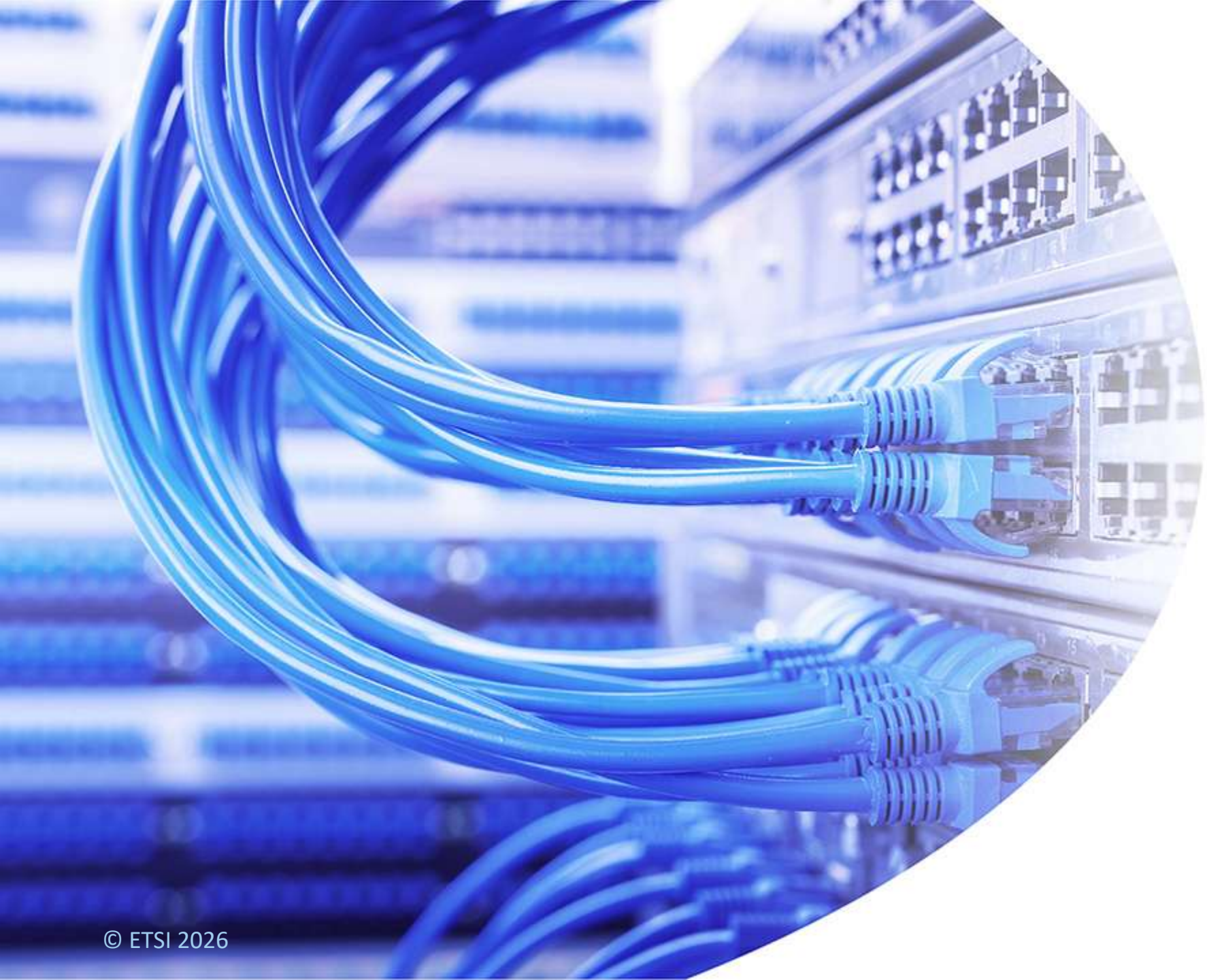
© ETSI 2026

Time schedule

- Ongoing TTF T056 **working session** October 2026 (in Berlin)
- **Report** to MTS#98 in October 2026
- Preparation of delayed documents for **milestone B** (November 26)
- *Additional TTF-T056 working session in January 2027, if necessary*
- *Follow-up* ETSI MTS **Open Sessions** on TTCN-3
  (before MTS plenaries: **2027-01, 2027-06**)
- *Follow-up* **TTF working sessions**
  (plan: to be synchronized with MTS plenaries)



© ETSI 2026



Thanks for your participation!

© ETSI 2026