



The Standards People

Chapter 4

The production of Standards for ICT

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06/10/2022

Forming the Next Generation of ICT Standards People:
A Day of Teaching Standardization

6 October 2022





Outline

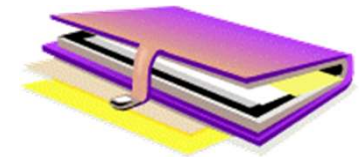


1. My background
2. Summary of Chapter 4
3. Teaching hints and experience

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Teaching Standardization - 06/10/2022

- **Doctor-Engineer** from French Telecom schools, Senior Member of the IEEE
- Qualified Maître de Conférences (**Assistant professor**) by French Universities
 - Teaching : PolyTech - Nice, Telecom Paris Executive Education
- **18 years in industry** : Thales (satellites) , IBM (early WLAN product in 1992 incl. 6 patents)
- **12 years in research**: mainly research on early 4G then 5G linked with European Research projects (FP5, FP6, FP7)
 - **60+ papers** on advanced mobile networking mechanisms
- CEO and **founder of Netellany** (2013-2017 until now)
 - Provides technical expertise to ETSI in STFs and to SMEs. Working closely together with FBConsulting, supporting ETSI Member
- **Standardization** : Cooperative ITS, SmartM2M, AIOTI, Emergency communications
 - Led several ETSI Specialists Task Forces since 2015
 - Rapporteur of 12 standards and active contributor to 12 additional standards
- EC expert for H2020 audits and evaluations (CNECT, MOVE)

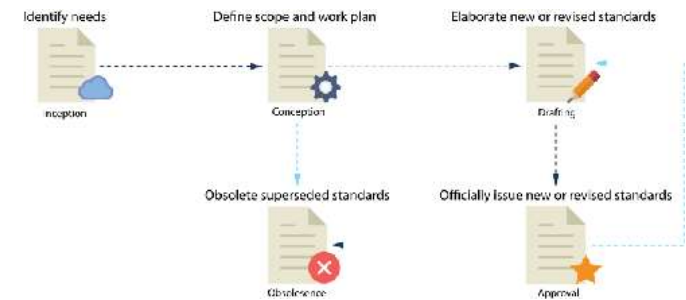


Summary of Chapter 4

Main ideas from the 66 slides in Chapter 4



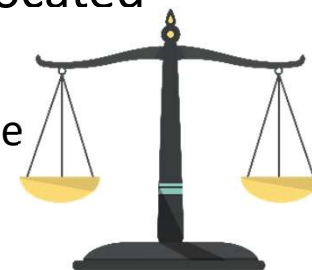
- The learning objectives of this section are to
 - Learn about how to prepare a standard
 - important **guiding principles**, such as consensus, impartiality
 - **development process and methodology**
 - Learn about SDOs
 - **governance bodies** and their roles inside SDOs
 - parties composing the **SDO structure**, as well as the **technical committees**
 - how to initiate a new standard and how to become a member of an SDO.
 - Learn about **Standardization Professionals (SP)**
 - **capabilities** that make an efficient delegate of a technical body
 - **main tasks** during standardization meetings, in the interval between standardization meetings and inside their company or organization to achieve the most out of standardization
 - additional duties of a **national SDO delegate**



Section 4.2

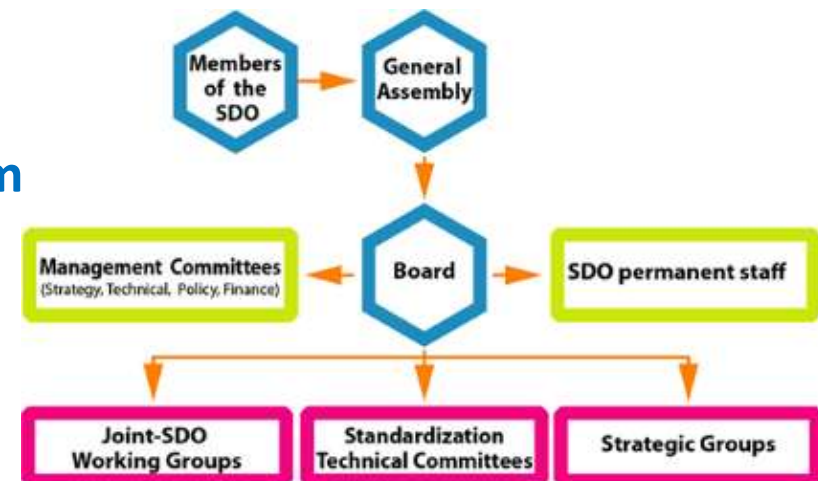
The standardization scene

- The standardization scene relates to both **the standardization process** and the **standardization structure** and operation
- What is a typical standardization environment?
 - **Code of good practice** with basic principles should be observed, as advocated by WTO TBT (annex 2 of the WTO G/TBT/1)
 - Transparency, openness, impartiality, balance, consensus, effectiveness, relevance to market needs, development dimension, coherence + Viability and stability
 - Measures for high-quality requirements in a standard
 - The production of a standard follows a **well-defined procedure**, that may vary depending on the SDO policies
 - Standardization steps of an ICT system
 - The process for producing standard documents
 - Examples: CEN/CENELEC, ETSI, IETF, HL7, Integrative Design Model



Section 4.2 The standardization scene (cont.)

- What is a typical **standardization environment**?
- SDOs are organizations with a well-defined structure to manage and administer the activities of their members
 - Typical **organization of an SDO** and its governance bodies. Financing
 - Examples: ISO, CEN-CENELEC, IETF
 - **SDO members**
 - Typical **organization of a technical com**
 - Examples: IEC



● The **Standardization Professional (SP)**?

- Works in a corporate organization, often in industry, national administration, research or academic organization, consumer or professional association, or as a staff member of an SDO
- **Is involved in standardization activities**
- Nominated to represent their organization in an SDO committee
- No need to have an engineering degree, but be **knowledgeable about the technical matters to be standardized**
- Carries out, but also often coordinates, most of the **tasks and activities to be performed in the standardization process**, with the help of the other peer SPs and company's staff
- Other denominations: "standardization engineer" or "standardization scientist"

● **Standardization Expert (SE)**

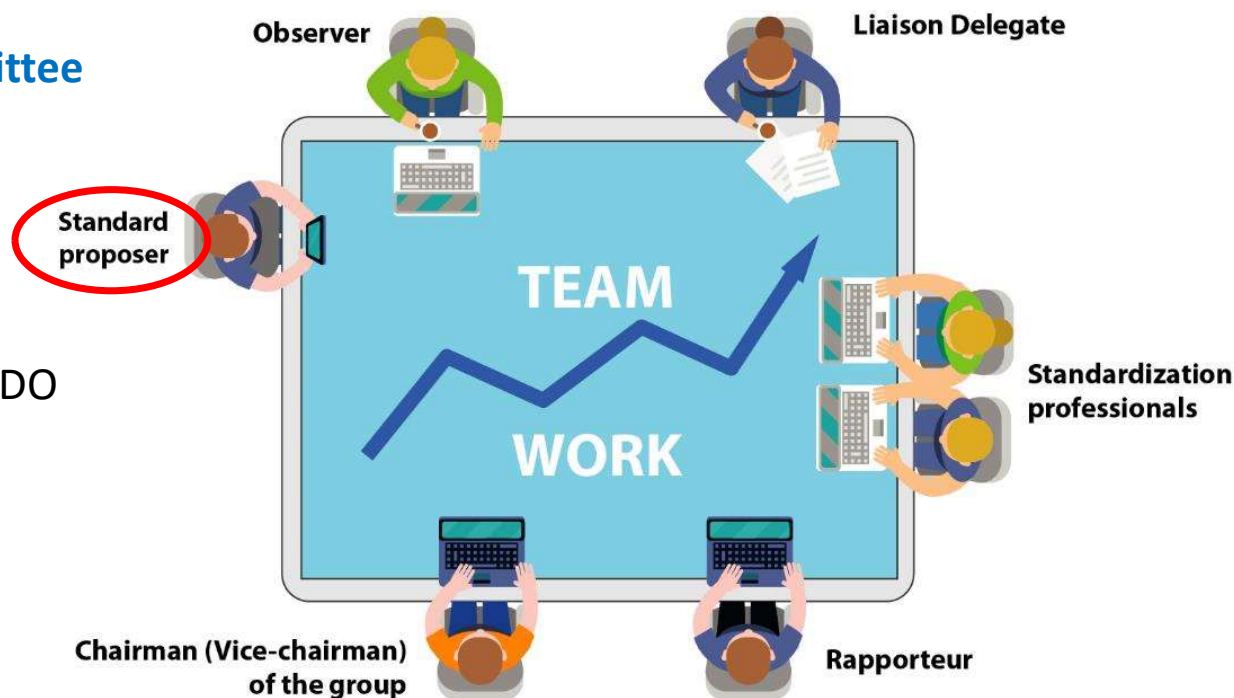
- an SP who **contributes to the content of standards** (no well-defined and agreed term for this position)



● Professionals involved in standard development process and their responsibilities

- In the **committee / sub-committee**

- In the **permanent staff** of the SDO



● Competencies and skills of a standardization professional: a mix of

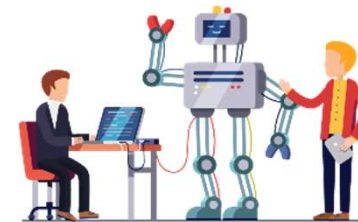
● Hard / Technical knowledge (“skills”)

- Understanding and management of technical content (ICT or domain specific)
- Understanding and management of ICT standardization
- Understanding and management of organization strategy

● Soft capabilities (“competencies”)

- Communication competencies
- Social competencies
- Personal competencies
- Methodology competencies

● See also Blind and Drechsler as a complement (2017)



● **During** standardization meetings at the SDO premises

- participate in **standardization meetings** (committee member, rapporteur or any other role)
- including interim periods such as **meetings breaks or networking time**

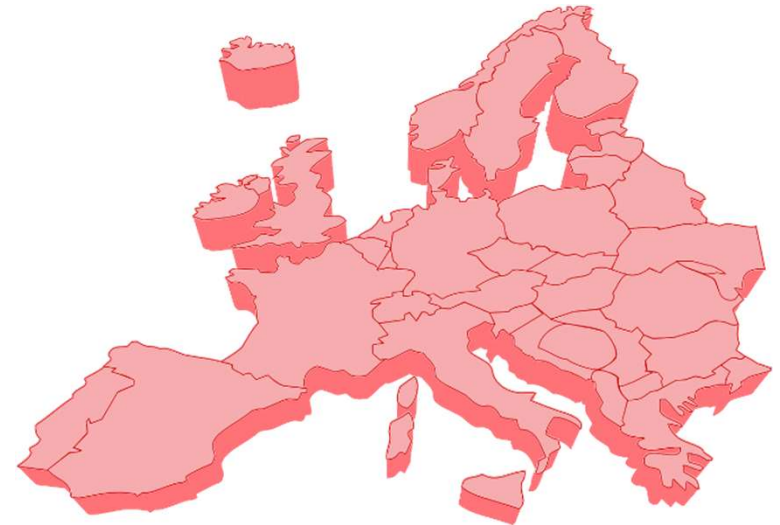
● **Between** standardization meetings

- write or review standardization documents and contributions
- interact with **colleagues inside own company**
 - relevant **technical teams**: acquired knowledge, prototypes, etc.
 - **marketing teams**: business strategy, customer’s feedback, etc.
 - **management teams**: company’s standards portfolio and standardization strategy



● Further activities as a **national delegate**

- Represent the point of view of **her/his country** in the standardization group as a member of her/his NSB
- Trigger at national level the **adoption, promotion and dissemination of international or regional (for example European) standards** and the withdrawal of conflicting national standards
- Organize meetings of national stakeholders to collect their positions (**national technical mirror committees**)
- Facilitate and coordinate the local involvement in the standards by all types of national players: providers, academia, societal stakeholders and national authorities



● Specific to this chapter

- **Case study:** the 3rd Generation Partnership Project (3GPP)
 - Governance of the Partnership Project and international footprint
 - Committee structure
 - Delegates technical skills
 - Standards development methodology

● Common to all chapters

- Introduction (section 4.1)
- Quiz
- Glossary with main terms: Committee, Rapporteur, Technical body, ...
- List of abbreviations
- References: SDO guides, regulatory texts, technical papers

Teaching hints and experience



- Part of a set of lecture units for **professional education** on IoT
 - CES-IoT proposed by **Telecom Paris Executive Education**
 - <https://executive-education.telecom-paris.fr/fr/formations-certifiantes/internet-des-objets-iot-objets-connectes>
- Class with an overview of the **full content over one single day**
- Students have already a career **objective** and a professional **background**
- Some students **already used standards** (and they are used in other units of the program)
- Teaching in **French** showing the slides in English
- Need to give a **mark at the end of the day**



- **Chapter 4 is very theoretical** compared to the others
 - Students are **more focused on norms** applicable to their future products **than on theory**
 - Example of their objectives : tracing tools in a nuclear plant, garbage collection
- One day is **short and long at the same time**
 - Need to strongly reduce the number of slides (**90 slides** from the 300+, **issue with ETSI IPR?**)
 - Showing only textual slides makes students snooze after “some time”
- **Focus on examples** provided along the chapter to illustrate each topic
- **Graphics** are always helpful
- Refer to **their objectives and their domain:**
 - In this case **“IoT standardization landscape and challenge”**, with a couple of **topic-specific slides**, making them comment on how they view it

- Quizzes extended with additional questions are proposed **at the end of each section to make a short break**. Used also for **final evaluation**.
- One **bigger exercise** has been added to the lecture to break the day
- Common **language is essential**: translate the main keywords to avoid any ambiguity
 - Example, in French, difference between “standard” and “norme”
Impact on the applicability of a regulation
 - During the day, highlight the English term and its French translation (or no translation at all)

Terminologie en français

- Le cours est écrit en anglais à partir du cours développé à l'ETSI (en cours de revision)
- Petit Larousse:
 - Standard: règle fixe à l'intérieur d'une entreprise pour caractériser un produit, une méthode de travail, une quantité à produire, le montant d'un budget (par exemple un prix standard)
 - Norme: règle fixant les conditions de la réalisation d'une opération, de l'exécution d'un objet ou de l'élaboration d'un produit dont on veut unifier l'emploi ou assurer l'interchangeabilité (les travaux de normalisation internationale sont menés par les Organisme d'Elaboration des Normes, OEN....)
- Wikipedia:
 - Standard: ensemble de recommandations développées et préconisées par un groupe représentatif d'utilisateurs
 - Norme: selon la définition officielle de l'ISO, un « document établi par un consensus et approuvé par un organisme reconnu, qui fournit, pour des usages communs et repérés, des règles, des lignes directrices ou des caractéristiques, pour des activités ou leurs résultats, garantissant un niveau d'ordre optimal dans un contexte donné. »
 - La langue anglaise ne connaît qu'un seul mot «standard» pour les deux mots français «standard» et «norme»
- Normalisation ("standardization"): processus d'élaboration des normes

● Example: Green technologies

➤ Short description

● Example: Privacy and Data management

➤ Short description



in the whole value

emerging

"data exchanges"

Development goals

Challenges : High Priority IoT Standardization Gaps

Source: [AIOTI Gaps analysis report \(2020\)](#)

Nb	Short name	Nature of the standardization gap	Domain
1	Applications to Span Multiple Ecosystems	APIs that decouple applications from the details of specific IoT ecosystems as a means to enable open markets of services.	Service and applications

IoT SDOs and Alliances Landscape (Technology and Marketing Dimensions)



Impact

Security / Privacy

Applications Management

Integration / Interoperability

Architecture

Connectivity

Service and applications

Security / Privacy

Societal

Appropriate


Respective IoT

Example of an additional practical exercise

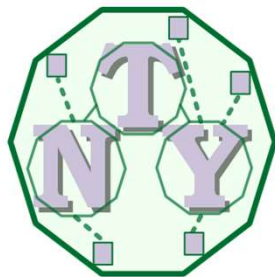


- Proposed as a **gap-filling exercise** (only 1h available)
- Objective: finalize the drafting of a **test standard**
- Ask **general questions** (e.g. locate and download a standard referenced in the text), then **fill the blanks** for testing values and fields from reference standards
- All but one **references** are provided as a set of documents to be used to find the requested information

4.5 Test Procedure

Interoperability Test Description				
Identifier:	TD_IOT_UC01_01			
Objective:	Process Hazard on the Road Warning (HRW) Information			
Configuration:	See Figure 2			
Pre-test conditions:	<ul style="list-style-type: none"> HV is outside the relevance area Smart device detects the hazard and is ready to send the CoAP message 			
Test Sequence:	Step	Type	Description	HMI
	1	stimulus	HV enters the use case zone on the test track	
	2	verify	✳	
	3	verify	✳	
	4	stimulus	HV enters the Relevance Area	
	5	verify	HMI displays the Hazard on the Road Warning	

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Any further questions?

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