Chapter 4

The production of Standards for ICT

Presented by: Michelle Wetterwald

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Outline

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

- **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
Chapter 4 objectives

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.
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
Section 4.3 Roles and competencies of a Standardization Professional

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
Section 4.4 Professional activities of a Standardization Expert

- **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)
- Quizz
- Glossary with main terms: Committee, Rapporteur, Technical body, ...
- List of abbreviations
- References: SDO guides, regulatory texts, technical papers
Teaching hints and experience
Teaching Conditions

- Part of a set of lecture units for **professional education** on IoT
  - CES-IoT proposed by Telecom Paris Executive Education

- 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)
IoT specific slides

- Example: Green technologies
  - Short description

- Example: Privacy and Data management
  - Short description

Challenges: High Priority IoT Standardization Gaps

<table>
<thead>
<tr>
<th>Nb</th>
<th>Short name</th>
<th>Nature of the standardization gap</th>
<th>Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Applications to Span Multiple Ecosystems</td>
<td>APIs that decouple applications from the details of specific IoT ecosystems as a means to enable open markets of services.</td>
<td>Service and applications</td>
</tr>
</tbody>
</table>

IoT SDOs and Alliances Landscape (Technology and Marketing Dimensions)

Source: AIDTI IoT Standardization WG – Release 2.9

To download the AIDTI report: https://aidti.eu/standardization/
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

<table>
<thead>
<tr>
<th>Interoperability Test Description</th>
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<tbody>
<tr>
<td>Identifier: TD_IOT_UC01_01</td>
</tr>
<tr>
<td>Objectives: Process Hazard on the Road Warning (HRW) information</td>
</tr>
<tr>
<td>Configuration: See Figure 2</td>
</tr>
</tbody>
</table>

Pre-test conditions:
- HV is outside the relevance area
- Smart device detects the hazard and is ready to send the CoAP message

Test Sequence:  |
<table>
<thead>
<tr>
<th>Step</th>
<th>Type</th>
<th>Description</th>
<th>HMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>stimulus</td>
<td>HV enters the use case zone on the test track</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>verify</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>verify</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>stimulus</td>
<td>HV enters the Relevance Area</td>
<td></td>
</tr>
</tbody>
</table>
| 5    | verify  | HMI displays the Hazard on the Road Warning | !
Any further questions?

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