



The Standards People



Boosting ICT Business and Innovation: A Comprehensive Approach to Standardization Education in Europe

The interview study

ETSI Specialist Task Force 515

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Summary

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 - ✔ Motivations and main activity organization
 - ✔ Targets and objectives
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Interviews

Motivations and main activity organization

- ✔ The STF 515 project started by realizing an **exploratory and preparatory study on the education requirements in ICT**.
- ✔ We acquired the data for this study by designing and realizing a consistent number of **direct interviews**.
- ✔ The activity has been organized as follows:
 - ✔ Identification of the **target and objects**.
 - ✔ Development of a **detailed interview guide** for the interviewers.
 - ✔ Identification of **participants**.
 - ✔ **Data collection** (interviews).
 - ✔ Data analysis and selection of the **relevant results**.



Targets and objectives

- ✓ The selected target groups :
 - ✓ **Practitioner** (both from large companies and SMEs, and including people from the standardization world).
 - ✓ **Researchers** (both from industrial or academic entities).
 - ✓ **Lectures.**
- ✓ The main interviews objectives:
 - ✓ Identification of the **relevant topics and trends.**
 - ✓ Selection of the most relevant **subject areas to be taught.**
 - ✓ Support in discovering the most important **peculiarities with respect to other sectors.**
 - ✓ Identification of the **best practices in education** (possible also with examples)
 - ✓ Identification of the **main barriers** for effective inclusion of standards education into academic curricula.

Interviews

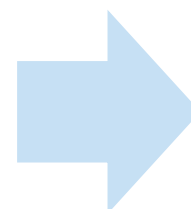
- ✓ Each interview has been organized into **three parts**:
 - ✓ an **introduction**;
 - ✓ a central (main) part **customized on the specific target** (practitioners, researchers and lectures);
 - ✓ a final one about the **future of education on standardization** and on the strategies for a wide diffusion.
- ✓ The total number of **interviewed people was 26**.
 - ✓ All the three target groups have almost the same number of presences
 - ✓ Some of the interviewed operate in two areas (e.g., the professors are typically both lectures and researchers) so they answered for both the specialized parts of the interview.
- ✓ The duration of each interview was between **one hour to one hour and half**.
- ✓ The average number of the **questions for each interview was about 20** (it changes depending on the target).
- ✓ The total number of the **answers** we collected is then more than 500.
- ✓ Total time spent only on actual interviews was **relevant**.

Results

Results: needs for education

Industry experts

- ✓ Basics of standardization system and its relations to regulation:
 - ✓ Standardization on national, European and international levels.
 - ✓ How to find, read, understand, develop, manage, apply standards? How to participate?
 - ✓ How to deal with different terminologies?
 - ✓ Standardization within consortia and their relationships to standardization bodies.
 - ✓ Strategies for companies and experts who participate in committees
 - ✓ Market entry and CE Marking

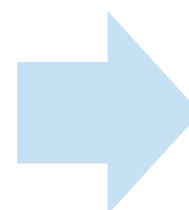


**Not engaging in
standardisation is not an
option in ICT.**

Results: needs for education

Educators (Universities/SDOs)

- ✓ Teaching topics besides the basics:
 - ✓ **Strategic use** of standards (e.g., their role for a market entry).
 - ✓ CE marking.
 - ✓ How to **read/write** standards.
 - ✓ **Patenting** and standardisation.
 - ✓ **Basics/mechanisms of technical standardisation** and legislation on national, European and international level.
 - ✓ **Risks and benefits** of using different standardization strategies.



It could be beneficial, to teach standardisation at different stages of the education.

Results: teaching material

- ✔ **Modular use of teaching materials should be possible:** depending on what students needs, education materials should be adaptable (e.g., according to the specialisation of the student).
- ✔ Use various **multiple methods/materials**.
- ✔ Textbook, presentations, games, multiple choice questions, videos, comics, webpage should be **consistent in design theme and content**.
- ✔ Make the teaching **interactive**.
- ✔ **Use a lot of pictures**, especially in the PowerPoint slides. In general, the slides for the presentations can be less formal than the book (e.g. catchy examples, anecdotes, comics).
- ✔ **“Keep the material rather short and focused - no 1000 pages teaching material.”**

Results: teaching materials

Industry experts

- ✔ Use **practical examples** (current and older) and exercises.
- ✔ Teaching materials should **not** be “**promotional materials**”; i.e., different types of standardization should be taught.

Educators (Universities/SDOs)

- ✔ “You will never be a standardisation expert by taking a lecture. **Our goal is basically to let [student] know, that it is something they have to think about.** For example, when they start a company.”
- ✔ “Unless you want to do teaching yourself, you must provide a detailed manual” and **extensive support materials for teachers.**

“Only because somebody has a bit of experience in standardization, it does not make him a good standardizer.”

Results: Integration of standardization in education

Industry experts

- ✔ Despite extensive experience in standardization, only **few experts taught standardization**.
- ✔ You can only get people with standardisation experience from the competitors. **Graduates usually do not have standardisation experience/(knowledge)**.



There is a not cover need.

Educators (Universities/SDOs)

- ✔ **Sign agreements** (MOUs – memorandum of understanding) **with universities**.
- ✔ **Cooperate with professors over a longer period of time**.
- ✔ **Involve top executives from the university but also from your own organisation** (especially in the early stages of cooperation with universities, for example during the negotiation of MOUs),

Conclusions

Conclusion

- ✔ Behind the consistent effort we had to invest, the results obtained were beneficial for driving the following project activities and they still are an **excellent source of relevant general information on the topic**.
- ✔ It is worth observing that the freedom given by direct interviews
 - ✔ from one side it allows the collection of **data and indications also far behind the initial expectations**,
 - ✔ but on the other side it produces **raw results that are poorly structured** and so quite difficult to analyze and synthesize.
- ✔ Behind more specific indications, in general, we observed
 - ✔ **high attention** on the subject but oriented to **many different specific interests and levels of deepening**;
 - ✔ the potential existence of **difficulties in integrating the subject in (academic) curricula**;
 - ✔ the **need for supporting** both student and **teachers**;
 - ✔ the frequent request **to make the subject as much as possible simple and attracting**;
 - ✔ **Soft skills** are considered a relevant topic.
- ✔ This work should be extended and updated in the future.



Thank you for
your
attention.

Questions ?