

# Three activities to promote the development of standard professionals

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**Abstract.** I was involved in three projects to educate standard professionals in 2017. The first was conducted for first through third-year university students as a part of standardization education in collaboration with several universities in the west Tokyo area, and many students participated. In the second, the Japan Standards Association began a system for registering standard professionals, and prepared and implemented a training system for acquiring registration qualifications. In the third, Yamaguchi University used government funds to create education materials for instructors for standardization education. These three projects are aimed at solving the problems found in past standard professionals' education. I will report the details of these three projects as a case example of standard professionals' development activities in Japan.

## 1 Introduction

Efforts to educate and train standardization-related professionals have a long history, but Japan only started undertaking such efforts at a policy level in 2004. In that year, the Koizumi Cabinet formulated a set of guidelines titled the “Big-Boned Policy” (honebuto no hōshin), which highlighted the “strategic acquisition of international standards.” In the same year, the government released the “Plan for Promoting Intellectual Property,” which underscored the importance of bolstering strategic efforts related to international standardization.

In tandem with these policy developments, METI released in June 2004 the “Action Plan for Bolstering the Base for International Standardization Practices” and, in 2006, the “Strategic Goals for International Standardization.” These guidelines stipulated two key goals: (1) Submit twice as many proposals for international standards than in the passing year, and (2) be the “core country” (the country that holds an advantageous position in the formulation of a given international standard) in as many standards proposals as Western nations. The guidelines also outlined a concrete measure for achieving these goals: “training standards experts who are internationally fluent.” Tasked with examining specific strategies for how to implement this measure, the Japanese Industrial Standards Committee (JISC) established a special committee on training and education. On July 16, 2008, the committee then released its report, which became the first report in Japan specializing in

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training standardization experts. The report was titled “Future Approaches for Training Standardization-related Professionals.”

Following the publication of the report, standards-related organizations in Japan undertook various initiatives; JISC (an ISO and IEC member) and the Telecommunication Technology Committee (TTC; an ITU-T member) provided textbooks on standardization [1][2], and the Japanese Standards Agency (JSA) likewise prepared educational materials and published a textbook [3][4].

In January 2017, JISC’s “Working Group for Training Standardization-related Professionals under the Public-Private Strategic Council for Standardization” formulated the “Threefold Action Plan for Training Standardization-related Professionals.” The Action Plan first defined three categories of standardization-related professionals: (1) managerial professionals responsible for developing rule-making strategies, (2) standardization experts, and (3) professionals who support companies’ standardization efforts. The document also outlined three actions that companies should immediately take in order to train such standardization-related professionals: (1) improve management’s awareness about standardization, (2) clarify organizational frameworks and the system of personnel evaluation, and (3) formulate and implement a plan to train the necessary professionals.

In response to these recommendations, we commenced three attempts to train up new standardization-related professionals. I will introduce these three attempts below.

## **2 Joint Lecture Course in Multiple Universities**

As regards the third category of standardization-related professionals, the Threefold Action Plan, focusing on professionals who support standardization efforts, emphasizes the important role that universities (at both the undergraduate and graduate level) play in this. According to a report of the last ICES[5], Japanese universities are not providing adequate education in standardization, either in terms of quantity or quality. The main reason why standardization education is not proliferating among universities is the shortfall in instructors who are capable of educating people in standardization. So far, I have held lecture courses on standardization in more than ten universities, which likely covers 30–40% of the number of standardization experts training currently implemented at universities. However, there is a limit to how much time one person can spare for such lecture courses.

Therefore, the working group’s leader, Haruo Takeda (Hitachi Ltd.), organized a joint lecture program on standardization involving five national universities in Tokyo’s Tama area (Tokyo University of Foreign Studies, Tokyo University of Agriculture and Technology, the University of Electro-Communications, Tokyo Gakugei University, and Hitotsubashi University).

The lecture program consisted of a week-long intensive course held in September 2017 in Tokyo University of Foreign Studies. I was responsible for the first half of the course (approximately 10 hours), which focused on basic knowledge about standardization, managing intellectual property, and business. For the latter portion, experts from nine entities among industrial sector and government agencies gave detailed lectures on the trends in the relevant field regarding standardization and international negotiations.

The key point of the course was to proactively convey information that closely linked standardization and rule-making. To this end, we put the following message at the forefront: you are either bound by the rules, or you make the rules. A lecture meeting to advertise the course was organized in the late spring of 2017 by a core industry team comprising Hiroaki Nakanishi (chairperson of Hitachi Ltd.), Hiroshi Tomono (Nippon Steel & Sumitomo Metal Corporation), and Tamotsu Nomaguchi (advisor and former president of Mitsubishi Electric).

Since the actual course was held in Tokyo University of Foreign Studies, 70% of the attendees were students from the said university, while the remaining 30% were students from other universities. Around 100 students attended the course. Before attending the course, most of the respondents said that they knew hardly anything about standardization. However, during the course, they learned not only about standards themselves but also about who formulates standards and how. The course was well received by the students; 70–80% of them expressed satisfaction, and many reported that they were pleased to have attended. We plan to hold the course also in 2018.

### **3 Systems for Training and Licensing Experts in Standards Development**

The 2008 JISC report stated that establishing a licensing system, such as a national exam, would be an important step in training standardization-related professionals. After subsequent deliberations, however, JISC abandoned the idea, and since then, it has never taken any action to license standards experts or expand the fluidity thereof.

In 2013, JSA implemented the “Program for Developing a Network of Experts in International Standardization.” Under this program, JSA created a registry database of Japanese experts in international standardization, and it launched a system under which companies who require the services of international standardization experts could apply through JSA to hire a registered expert. However, it was up to the experts themselves whether they would apply to register to the JSA database, and JSA regulated the skillset in its database by setting certain criteria, such as requiring applicants to have attended international conferences in the past. For these reasons, JSA failed to get an adequate number of experts registered, and the system was not widely used by companies.

Therefore, JSA decided that it would need to launch a new registry of standardization experts, and to this end, it deliberated on what kind of training system it would need to ensure that experts had the requisite competences. I participated in these deliberations as chair of the investigative committee.

Based on the findings of the investigative committee, JSA developed two training courses, and it stipulated that individuals could register themselves as standards development experts if they have attended the training and have two years of on-the-job practical experience.

To describe the training in more detail, trainees must attend a 1-day (6-hour long) course titled “basic course in strategically applying standardization” and pass an end-of-course exam. At present, I am in charge of this 6-hour course, and as the chair of the editing committee, I use a JSA textbook on standardization [3]. I also designed the end-of-course exam. We asked attendees of the second course (held in Tokyo) and third course (held in Osaka) stated their purpose for attending. Few of the respondents said that they attended the basic course in order to register with JSA; the majority attended either to apply the knowledge in business or to boost their own knowledge.

Those who pass the end-of-course exam are able to attend a more advanced course, titled “standardization expert course.” This course lasts for four days, and I am in charge of the first day. As for the remaining three days, officials from ISO, IEC, JIS (especially those who contributed their texts to the abovementioned textbooks and also), as well as in-house standards experts, deliver lectures about how standards are drawn up in their particular fields.

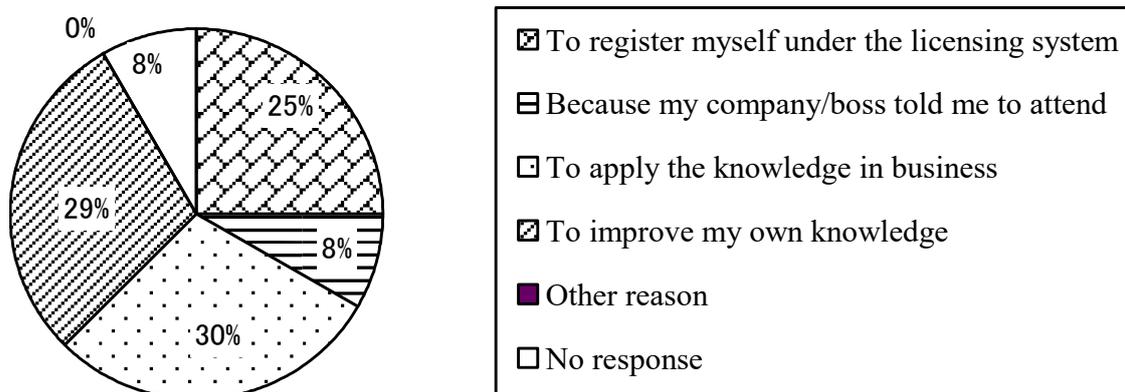


Fig.1: Reasons for attending the standardization expert course in strategically applying internationalization.

Those who attend the course and pass the end-of-course exam can register themselves on JSA’s database as provisional standardization experts. Then, once they have gained two years of operational experience (participating in an official capacity in international or national standardization processes) since the time of their registration, they can register as full standardization experts.

Figure 1 shows the results of questionnaires in which the attendees of the standardization expert course stated their purpose for attending. Participation for qualification registration is also small in this course. However, 80% of the attendance registered as experts after completing the course.

Those registered can renew their license every two years, but the renewal process costs money. As such, only those who are willing to apply their expertise will register. Nevertheless, almost one year since the system’s launch, as many as 48 people are registered, demonstrating the potential for getting more people registered as the system spreads widely.

As a special dispensation for the period up to March 31, 2019, those with more than three years’ experience in standardization practice are permitted to register as standardization experts without having to attend the above training. This dispensation applies to the system’s initial launch period, but given that there are many experts in Japan who already have sufficient knowhow and thus do not require training, this dispensation is arguably an essential measure to bring these experts on board as registered standards experts.

Incidentally, in the year 2018, we held the “basic course in strategically applying standardization” three times and the “standardization expert course” twice.

#### 4 Developing Materials for Universities

As mentioned above, a number of educational materials have already been developed. I myself have referred to a number of these, but considering the shortage of instructors who are competent to educate in standardization, simply issuing textbooks or lecture materials will not be enough to expand standardization education in universities. Therefore, in 2017, METI issued funding for a project to develop lecture notes for instructors. The notes were to be developed by integrating the materials I used in my lectures to university students with the content of these lectures.

The people who took charge of the project were Professor Tomohisa Kimura and Associate Professor Masato Sasaki, from the Yamaguchi University's Intellectual Property Center. Yamaguchi University selected Kimura and Sasaki because its Intellectual Property Center had prepared lecture materials on intellectual property the year before, and so they could use these materials to help standardize the knowledge in the lecture notes.

As part of the project, I conducted a 2-day long intensive lecture course at Yamaguchi University, videoing the entire proceedings. A text transcript was prepared and combined with the slides I used, thus creating something akin to a lecture transcript.

Yamaguchi University edited the video footage, preparing a 10-hour long lecture video. In the transcript, my verbatim speech was extensively edited into a format that could be read out as is by instructors in standardized lectures. This process culminated in an approximately 300-page instruction manual. Videoing a lecture can enable e-learning, but our purpose was to ensure that instructors at each university could deliver standardized lectures themselves; therefore, we wanted instructors to deliver the lectures using the textual material in the manual, and to use the video footage only for their reference.

For 2018, we plan to conduct an awareness raising campaign aimed at promoting the use of the lecture manual and video in many universities across Japan and encouraging each university to develop their own lectures based on the material. Arrangements have already been made to introduce the material at the assembly of national universities.

## 5 Conclusion

As I presented at last year's ICES2017 and APEC-IEC-ISO workshop [6], the following is a summary of the issues recognized in standardization education in Japan.

- a. There are no suitable textbooks
- b. There are too few personnel capable to carrying out training
- c. Students and business people have no interest in standardization (the merits of learning standardization are not apparent)
- d. There are no places for working adults to learn about standardization.
- e. Company management does not recognize the importance of standardization knowledge.

The three approaches in this study were attempts to resolve these issues. First, as mentioned in (1), regarding the issue of (a) textbooks, there has been some degree of improvement made in textbooks for standard professionals involved in standardization activities. In (2), running the lecture in collaboration with several universities, although it compensated for (b) the shortage of education personnel, it succeeded in (c) stirring up interest in standardization. For (3), the standard development expert system and the preparation of a training system for that, we created (c) merits for learning standards and were able to provide (d) a place for working adults to learn about standards. Then, in (4) the development of university education materials, it became possible to expand standardization education at universities by compensating for (b) the personnel shortage.

As mentioned above, I will continue the standardization lectures this academic year as well, in collaboration with several universities and will also hold training sessions for standard development expert systems. Furthermore, I am planning to develop and publish an inexpensive (\$5) textbook on standardization for university department students, centered on Yamaguchi University.

In this way, the major remaining issue is the fact of (e) company management not recognizing the importance of standardization knowledge. To resolve this issue, I am working on increasing the opportunities for direct training for company management, but it

is not easy for company managers to set aside time to attend training, and it is also not easy to change the minds of older company managers.

Perhaps this issue can only be dealt with by spending time. By increasing standardization education at universities and graduate schools, we can expect the awareness toward standardization to change greatly by the time the students who learned there become company management themselves. It is particularly necessary to increase standardization education not just in STEM education fields, but also in economics, management departments, and business schools. For such educational opportunities to happen, it may also be necessary to create standardization textbooks geared toward business activities.

As we have seen from the above, since JISC released its action plan in January 2017, there have been many undertakings in Japan to train standardization-related professionals. I have engaged in many of these efforts as an instructor. However, we have still not fully established a system in Japan for training standardization-related professionals. Looking forward, we need to continue making various efforts to expand standardization education.

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