How to Strengthen National Standards Competitiveness – Korea’s Human Resource Development System for Standardization

Submitted by: Korea
Human resources of Standardization in Japan

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History and current situation
History of the Standardized Human Resources Discussion

- Koizumi Cabinet *Basic Policies 2004* ⇒ strategic acquisition of international standards
- *Intellectual Property Promotion Plan 2004* ⇒ strengthening of strategic international standardization activities
- METI *Action Plan for the Basic Strengthening of International Standardization Activities (2004/6)* ⇒ study of educational programs and educational materials development for standardized education at engineering universities
- Keidanren *Recommendations for the Promotion of Strategic International Standardization (2004/1)* ⇒ Promoting the Development of Human Resources Rich in Technical Knowledge Capable of International Negotiations
- *Intellectual Property Promotion Plan 2005* ⇒ development of standardized human resources
- METI *Internationally Standardized Strategic Goals (2006)* ⇒ ① double the number of international standards proposals, ② same level of “secretariat countries” as Europe and the US ⇒ develop globally recognized standards experts
- *Intellectual Property Promotion Plan 2010* ⇒ Develop 800 experts in international standardization capable of becoming chairpersons and chief examiners at international standardization institutions.
- Kanazawa Institute of Technology (2013) ⇒ Standardized human resources skill standards development
Strengthening standardization human resources development

1. To develop human resources capable of executing international standardization and possessing globally recognized negotiation and management ability, the government and the JSA strengthen the young professional training system in the ISO field as well (previously conducted in the IEC field) and introduce OJT into this training system.

2. JSA prepares a short-term program to acquire knowledge needed to participate in international standardization discussions.

3. The government, JSA and industry study human resource development programs for management, sales, new employees, etc.

4. The government cooperates with industry and academia to prepare systematic and standardized teaching materials for university-level technology management curricula in order to promote the introduction of standardization courses.

5. Related groups collaborate with government to work on strengthening systematic human resource development in consideration of career paths to secure core international standardization human resources across generations in important areas of industry responsible for secretariat nation work, etc.

6. JSA builds a database of human resources experienced in international standardization and supports individual international standardization projects.

7. The government and the JSA systematically develop Japanese international human resources for appointment to ISO and IEC central secretariats.
Are There Any Proactive Human Resources Responsible for Standardization in Your Company?

January 2017

Working Group for Studying the Development of Human Resources Responsible for Standardization under the Public-Private Strategic Council for Standardization
Standardization Efforts could be Risks or Advantages for Your Company Depending on Human Resources Responsible for Standardization (“Human Resources for Standardization”)

Standardization was a common foundation among industries for the dissemination of new technologies. However, the implication behind standardization has been changing recently. The function of standardization has been shifting from the foundation for disseminating individual technologies to the role for making more significant impacts on the economy. Are there any human resources for standardization in your company who are able to incorporate this trend in management or business strategies and to proactively carry out the strategies?

01

Japanese Companies Facing Dramatic Changes in External Environments

Changes in the External Environments

- Shift of standardization along with the development of the Fourth Industrial Revolution
  - The fields that need standardization have shifted from individual technologies to the formulation of business or markets per se.

- Overseas countries’ proactive efforts for winning international standards
  - Western countries: Promoting international standardization efforts as a rule-making strategy
  - Emerging countries: Vitalizing the standardization trends aiming to lead global standardization efforts (for winning key positions)

Japan’s Current Situation

- Placing individual technologies at the center of standardization efforts
  - Companies have not incorporated international standardization efforts into their management or business strategies.
  - They need to fortify systems under which they are able to collaborate across sectors.

- Management’s insufficient understanding of rule-making activities
  - Companies have not developed organization systems or personnel evaluation systems well.
  - They have not smoothly passed down expert employees’ know-how and knowledge to young employees.
02 Necessary Human Resources for Standardization in Your Company

Management Human Resources responsible for developing Rule-Making Strategies (Management Levels)
- Management human resources should formulate rule-making strategies, including those for standardization efforts, based on the understanding of their own companies’ management and business strategies.

Experts in the Field of Standardization (Developing In-House Experts/Recruiting External Experts)
- Such experts should have skills necessary to draft standards and to negotiate such prepared standards with overseas stakeholders, and should also be able to achieve the standardization efforts defined in their companies’ rule-making strategies.

Human Resources who Bolster the Base of Company Standardization Efforts by Their Basic Knowledge
- Such human resources should have fundamental knowledge concerning the targets of standardization efforts and the structures, formulation processes, or other basic knowledge of standards.

03 What Actions Should Companies Take to Achieve These Goals?

- Companies should raise the understanding of the importance of standardization activities at the management level.

- Management levels should understand the importance of standardization activities and establish organization and personnel evaluation systems. Companies should establish the position of a chief standardization officer (CSO).

- CSOs should prepare and execute a plan for developing human resources for standardization.
04 Support Measures by the Government of Japan and Related Associations

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**The Government of Japan**

- Japan should clarify the fields that it should emphasize.
- It should enhance the rule intelligence (information collection and delivery) function and fortify collaboration with companies that have established the position of CSO (regular meetings, etc.)
- It should provide the enhanced incentives for companies’ standardization activities (improvement of award programs, issuance of certificates as evidence for those appointed to committees and WG experts within ISO and IEC, and storage of data on contributor experts in a database).
- It should improve university and other school curricula concerning standardization and prepare model curricula or education materials for faculty development.

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**Japanese Standards Association (JSA)**

- JSA should establish a new qualification system concerning standardization efforts.
- It should establish a new overseas dispatch system (observation of related international meetings, enhancement of personal connection with key persons, and acceptance of staff dispatched from overseas companies, etc.)
- It should register companies’ retired employees who are experts in the field of standardization.

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**Industry Associations**

- Industry associations should provide university students in the faculty of engineering with special curricula concerning standardization activities in a variety of industries.

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**Universities**

- Universities should develop, establish and improve curricula on standardization according to departmental focus and student standing, aiming to increase the number of human resources able to bolster the base of company standardization efforts through their basic knowledge.

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**National R&D Institutes**

- National R&D institutes should organize cross-sectoral projects and provide human resources who are able to lead standardization efforts over a long period of time, focusing on fields that Japan should emphasize.
- They should share best practices and spread individual achievements across institutes.
現状の対策方向
Structure of Human Resources for Standardization

- **Main Target**: Management Human Resources responsible for developing Rule-Making Strategies (Management Levels)

- **Existing policy target**: Experts in the Field of Standardization (Developing In-House Experts/Recruiting External Experts)

- **Expand target**: Human Resources who Bolster the Base of Company Standardization Efforts by their Basic Knowledge
Standards Professionals Measures

■ Developmental methods to date
  ● Standards Professionals development relies on company OJT.
  ● JSA conducts a number of training programs.

■ New experiment: Standardization expert registration system
  ● JSA started a standardization expert registration system in 2017.
  ● Registration with JSA as a standardization expert is possible following stipulated training.
  ● Companies without experts can hire registered experts or use them as consultants.
  ● Around 800 experts might meet Standards Professionals needs in Japan.
Management Problems and Issues

- Management has limited standardization experience, so:
  - ISO means ISO-9000.
  - Anyone can get JIS so it cannot be used for distinction.
  - Standardization work is volunteer-based.
  - How much money can we make if we standardize?
  - There is de facto standardization when you control a market.
  - We’ll use standardization when it is adopted.
  - I don’t believe articles that say standardization promotes economic growth.
  - Standardization stops innovation.
  - Setting rules in individual companies is difficult and a waste of money.
  - We can quickly catch up to any standard.
  - Etc.
Management Problems and Issues

**Results**
- Young workers are not assigned to standardization-related work.
- Talented workers are not used in standardization.
- Standardization experience has no value in evaluations.
- There is no spending to develop standardization human resources in companies.
- Workers nearing retirement that can’t be used for other purposes are used for standardization.

**Age of participants handling main roles at international conferences**

**Japan**
- 5% are under 50
- 52% 20s
- 43% 30s
- 5% 40s
- 5% 60 and above

**China**
- 1% are under 50
- 40% 20s
- 29% 30s
- 27% 40s
- 3% 50s
- 5% 60 and above

**South Korea**
- 9% are under 50
- 30% 20s
- 46% 30s
- 15% 40s
- 9% 50s
- 6% 60 and above

Source: JISC
A change in management thinking is needed, but...

- Management can’t do training (lack of time / stubbornness).
- Internal standardization human resources are not in a position to give advice to management.
- Standardization business results are not easily quantified.
- They cannot be convinced by examples in other companies.

How to respond

- Development of supporting human resources (expansion of education in universities and graduate schools)
- Employ young workers with experience in standardization from overseas.
- Develop standardization consulting businesses.
- Popularize the use of standardization experts.
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Education of Standardization in Japan
Questionnaire survey for all Universities

Response: 120

Group:
- Graduates, 69%
- Technical colleges, 9%
- Graduate Schools, 22%

Total 285 classes
Courses and styles

- School Subject
  - Medical: 5.8%
  - Science/Engineering: 19.6%
  - Business: 12.2%

- Group
  - Total 285 classes
  - Graduate Schools: 22%
  - Technical colleges: 9%
  - Under Graduates: 69%
Lecture hours

- no answer: 2%
- 1.5 hours or less: 33%
- 1.5 ~ 5 hours: 24%
- 5~10 hours: 9%

Total 285 classes

- Under Graduates: 69%
- Graduate Schools: 22%
- Technical colleges: 9%

[分類名] [パーセンテージ]

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Lecture hours

Total 285 classes

- 86 classes: no answer 2%
- 1.5 hours or less 33%
- 1.5 ~ 5 hours 24%
- 5~10 hours 9%

Lecture hours by School Type:

- Technical Colleges:
  - < 1.5: 11
  - 1.5 < 5: 65
  - 5 < 10: 68
  - 10 <: 15
  - no: 6

- Under Graduates:
  - < 1.5: 6
  - 1.5 < 5: 58
  - 5 < 10: 20
  - 10 <: 15
  - no: 8

- Graduate Schools:
  - < 1.5: 25
  - 1.5 < 5: 8
  - 5 < 10: 15
  - 10 <: 15
  - no: 6
Analysis of standardization education

86 classes

Specific technology
- ex. Nursing
- Information engineering
- Chemical engineering
- 33

Law / English
- ex. Constitution
- International law
- English studies
- 12

Real Education of Standardization
- 16

Basic Science
- ex. Industrial Ethics
- Business Administration
- Information Processing
- 12

Quality / Environment
- ex. Quality control
- Environmental management
- 13
Analysis of standardization education

16 classes  +  8 Known education classes (questionnaire not answered)

My classes

All teachers have experience of standardization activities
Education depends on his experience and field of expertise
### Lecture contents

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- **International Standards:** 100%
- **National Standards:** 98%
- **Industry Standards:** 96%
- **Forum Standards:** 90%
- **Corporate Standards:** 80%
- **De-facto Standards:** 70%
- **No Answer:** 285 classes
Conclusion

■ Current Problems
  ● Standardization education is widely practiced, but contents are limited.
  ● The number of teachers is not enough.
  ● The content of the education depends on the experience of the teacher.
  ● Education for undergraduate is not enough.
  ● Education of conformity assessment and relation with regulation is not sufficient.

■ New challenges
  ● Joint Intensive lecture at Tama area 5 national university
  ● Development of e-Learning teaching materials
  ● Education for young business people by JSA