The IPSJ Model for IT Professional Certification

－Executive Summary－

Hiroharu ASAHI (Hitachi Ltd.)　Tetsuro KAKESHITA (Saga University)
Akira SHIBATA (Mitsubishi Electric Corp.)

1. Purpose of the Summary

The special issue on IT professional certification in the IPSJ* Journal of Digital Practices contains three papers [1-3] that propose the IPSJ model for IT professional certification. We summarize the main points of the three papers in this article.

2. What is IT Professional Certification ?

The IPSJ model for IT professional certification (hereafter, we shall call "the IPSJ model") is developed based on the IT Skill Standard (ITSS) proposed and maintained by IPA† , an incorporated administrative agency established by the Japanese government‡. ITSS defines seven levels of IT professionals. Among them, ITSS Level 4 represents the level of a leader of a project team of up to 10 members§. The IPSJ model handles certification for IT professionals of ITSS level 4 or higher. IPSJ examines each applied IT professional to judge if the applicant has abilities satisfying all the criteria defined by ITSS, and issues a certificate to the applicant who passes it.

3. Why We Need Certification ?

The main reason that IPSJ develops a model for IT professional certification lies in the following observation on the current situation.

Information system is a fundamental infrastructure of the society. The responsibility of IT professionals is getting heavier as professionals to develop and maintain such infrastructure. However the social status of IT professionals is rather low in Japan and IT is not recognized as an attractive field. There is a tendency that many IT professionals negatively perceive their profession. As a result, applicants to IT departments are decreasing at many universities.

There are two main reasons of the low social status of IT professionals in Japan. One reason is that the IT profession is not fully established yet. The other reason is that professional community is not established in the IT domain. The number of IT professionals is about one million in Japan. The establishment of IT professional community is essential in order to comprehensively address various problems that prevent the society from utilizing IT.

The IT professional community shall lead IT professionals in their autonomous quality improvement to satisfy social or industrial needs and to contribute to the society. As a result, we expect, the social status of IT professionals will be raised and IT will be recognized as an attractive and challenging field.

The establishment of IT professional community is the first step to develop desirable relationship between IT professionals and the society. Consciousness reformation and positive action of IT professionals are essential to create such new relationship.

IT professional community should be organized by IT professionals in cooperation with IT vendors, information systems (IS) user companies, industry associations, government and local governments, academic/professional societies, academic institutions, etc. IPSJ is willing to play a central role in establishing the IT professional community.

Under the above recognition, we have developed the IPSJ model for IT professional certification as a means to reveal who are the core members of the coming IT professional community.

The IT professional certification will benefit every stakeholders: IT vendors can use it to solicit their employees to development themselves, and show their competitive power and value by indicating the number of their certificate owners;

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* Information Processing Society of Japan

† Information Technology Promotion Agency of Japan (http://www.ipa.go.jp/index-e.html)

‡ Ministry of Economy, Trade and Industry (http://www.meti.go.jp/english/index.html)

§ ITSS Level 4 corresponds to SFIA Level 5.

IS user companies, including government and local governments, can use it in order to evaluate IT competitiveness when they hire outside personnel and/or when they order software development to IT vendors.

4. Two Policies of the IPSJ Model

We set the following two policies to design the IPSJ model.

(1) Conformance to the National Standards

IT Skill Standard (ITSS) and Common Career Skill Framework (CCSF) developed by IPA are widely used as skill frameworks for IT professionals[**]. The IPSJ model is developed in conformity to ITSS and CCSF.

(2) Conformance to the Global Standards

Considering the globalization of the society and the business, we shall design a certification that will be globally recognized in the IT domain. We have carefully investigated major certification schemes in the world and selected the most advanced framework, which is developed by IFIP IP3 (International Professional Practice Partnership).

IFIP IP3 developed a framework of mutual recognition of IT professional certifications in each country. The IP3 framework conforms to ISO/IEC 17024 (General requirements for bodies operating certification of persons) and ISO/IEC 24773 (Software engineering - Certification of software engineering professionals - Comparison framework). The framework imposes certain requirements to each certification scheme to achieve global equivalence within the framework. IFIP accredits each member society as a certification organization. The accredited societies issue a certificate for each IT professional in their country.

5. Operation of the IPSJ Model

The IPSJ model certifies IT professionals of ITSS level 4 or above. A fundamental professional at level 4 should have appropriate knowledge, skill and successful achievement as a team leader. The evaluation criteria are defined based on ITSS. The IPSJ model also contains certification renewal, CPD (Continuing Professional Development), code of ethics, disciplinary regulations that are required by the IP3 framework and the ISO standards.

We are planning to start IPSJ certification at ITSS level 4. The certification scheme of IPSJ is composed of direct and indirect schemes: individual certification and company accreditation. IPSJ directly evaluates each applied IT professional in the individual certification. On the other hand, IPSJ accredits and entrusts a company to certificate its employed IT professionals.

5.1 Direct Scheme (Individual Certification)

In the individual certification scheme, examination on IT knowledge of each applicant is substituted by one of advanced level of the Japan Information-Technology Engineers Examination (ITEE)[††], which is designed compatible to ITSS level 4. We also need application containing achievement record. The achievement record submitted by each applicant will be evaluated based on business and professional contributions, skill proficiency and knowledge items defined by ITSS. The application form and the evaluation process are developed along the "guideline for IT professional certification" published by IPA. The evaluation will be carried out by a board of examiners nominated by IPSJ.

Renewal of the certification is required for each certificate owner to catch up with the rapid advancement of IT and to maintain one's technology level. The CPD record of the applicant is checked at the time of the renewal. The renewal criteria are developed based on CPD guidelines by the Japan Federation of Engineering Societies, the Institute of Professional Engineers, Japan, etc.

5.2 Indirect Scheme (Company Accreditation)

Large IT vendors often run their private IT certification schemes for career development of their employees and for proper job assignment of them. There are many cases that the private certification scheme is based on ITSS and the IPA guideline for IT professional certification so that we can expect a high compatibility between such private schemes and the IPSJ model.

The purpose of the indirect scheme is to accredit a private IT certification scheme to properly evaluate the employees while retaining a certain ITSS level. Then we can delegate a part of the IT professional certification to the accredited IT vendors. Such delegation of the certification is useful to

[**] http://www.ipa.go.jp/english/humandev/index.html

[††] http://www.jitec.ipa.go.jp/index-e.html

efficiently operate the IT professional certification in Japan.

The indirect scheme is essentially a quality assurance mechanism among private certification schemes. Thus there is a similarity between the indirect scheme and ISO 9001 (quality management system). For example, uniqueness is respected to develop concrete plan as long as the evaluation criteria is satisfied.

IPSJ has accredited many IT departments of Japanese universities for 10 years under the accreditation scheme developed by JABEE[‡‡], which joined the Seoul Accord for IT education at the very beginning of the accord. JABEE has also developed an evaluation scheme for IT professional schools with our support and is accredited as an education evaluation organization by the Japanese government. The indirect scheme is designed based on our experience of such activities on quality assurance of higher education in IT domain.

The accreditation of an IT vendor will be carried out by checking and evaluating whether the private scheme of the company satisfies the accreditation criteria. The accredited company then evaluates their employees and reports grant and forfeit of the certification. IPSJ issues certificates based on the report.

6. Conclusion

The details of Section 2-4 are described in [1]. The details of the individual certification scheme (Section 5.1) are described in [2], and the details of the company accreditation scheme (Section 5.2) are described in [3]. However we apologize that these papers are written in Japanese. We welcome any advices and/or comments to the IPSJ model from various viewpoints.

References

[1] Tetsuro KAKESHITA, Akira SHIBATA, Hiroharu ASAHI, “The IPSJ vision on the IT professional certification”, Journal of Digital Practices, Vol. 3, No. 2, pp. 108-116, April 2012. (in Japanese)

[2] Akira SHIBATA, Tetsuro KAKESHITA, Hiroharu ASAHI, “The IPSJ model of individual certification for IT professional”, Journal of Digital Practices, Vol. 3, No. 2, pp. 117-124, April 2012. (in Japanese)

[3] Tetsuro KAKESHITA, Akira SHIBATA, Hiroharu ASAHI, “The IPSJ model of company accreditation for IT professional”, Journal of Digital Practices, Vol. 3, No. 2, pp. 125-132, April 2012. (in Japanese)

‡‡ Japan Accreditation Board for Engineering Education (http://www.jabee.org/english/)