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A research on ICT standards management based on standards reusability analysis

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A research on ICT standards management based on standards reusability analysis

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Abstract

Standards are those generally agreed through repetitive use. They also make products and services more reliable. Thus, when developing standards, one should at first be aware of what the market actually needs not what the developers and providers want. If not, unnecessary standards will eventually end up being unused and dismissed. In this sense, standards developed primarily based on users' point of view are much more reusable. As information and communication technology (ICT) being accelerated these days, the number of standardisation activities has been dramatically increased and a great number of group and international standards has been developed all over the world. Therefore, Standards Developing Organisations (SDOs) follow routine maintenance procedures on their developed standards in order to assure their quality. In this paper, the authors propose a methodology for managing developed standards to enhance standards reusability in terms of standards development, maintenance, and management.

1. Introduction

After finalising the Agreement on Technical Barriers to Trade (TBT Agreement), an international treaty administered by the World Trade Organisation (WTO), international standards have become more important than ever as international regulations in the information and communication technology (ICT) industry. In addition, due to the rapid development in ICT and improvement on product lifecycle, there have also been active standardisation works reflecting market demands in terms of economy, technology, and user protection. In ICT industry nowadays, unlike traditional industries, technologies lower their boundaries in order to converge with other technologies from different technical fields. Thus,

those who take over and preoccupy essential technical standards can gain a competitive advantage over rival companies. Furthermore, if their intellectual property rights (IPR) were incorporated into standards, they can earn a huge profit from royalties and will eventually dominate the market. Therefore, companies have been making huge efforts to incorporate their technologies into international standards.

From the economic development point of view, standards are crucial for developing domestic industry, improving international competition, and enhancing interconnectivity, interoperability which leads to market growth. From the technology point of view, standards are also important for introducing advanced technologies, avoiding overlapping investments, and leading the market by standardisation activities. In addition, from the user protection point of view, standards help reducing the cost and improving user convenience by standard interface and standard directions. Throughout this paper, the use of standards and other indicators are researched based on the state of use of individual standards. Based on these results, the authors studied the use of ICT standards in public and private sectors and provided the ways to solve the current problems of standards. Furthermore, the authors propose approaches to enhance the effectiveness of standards and to develop and distribute high quality standards.

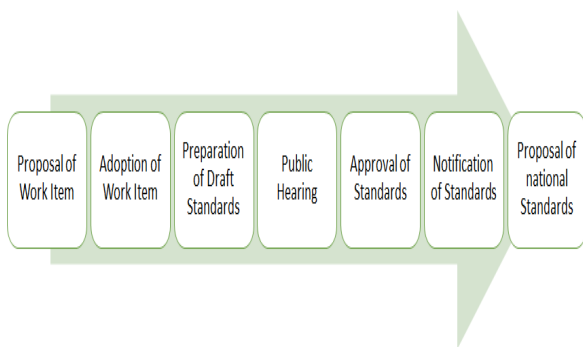
2. Telecommunications Technology Association (TTA)

The purpose of TTA is to contribute to the advancement of technology and the promotion of information and telecommunications services and industry as well as the development of national economy, by effectively establishing and providing

technical standards that reflect the latest domestic and international technological advances, needed for the planning, design and operation of global end-to-end telecommunications and related information services. Its purpose is carried out in close collaboration with companies, organizations and groups concerned with information and telecommunications such as network operators, service providers, equipment manufacturers, academia, R&D institutes, etc. The activities associated with TTA are as follows.

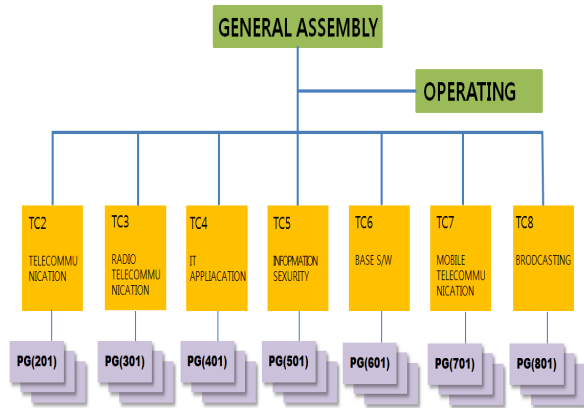
- Establishment, revision and dissemination of info-communication standards
- Planning of info-communication standards and research on confronting strategy
- Management and control of info-communication standardisation projects
- Testing and certification of info-communication-related products
- Training of ICT international standards experts and supporting of standardisation forum activities
- Setting-up and operation of a database for integrated standards information
- International standardisation cooperation and standardisation of info-communication terminology

Standards development is the principle role TTA for aiming at market preemption. Individuals or groups can propose TTA standards protected by their own IPR. The standardisation procedure normally takes from six to twelve months and this procedure is as follows.



[Figure 1. TTA Standardisation Procedure]

This procedure take place at the General Assembly and Technical Committees. The structure of TTA is as follows.



[Figure 2. The structure of TTA]

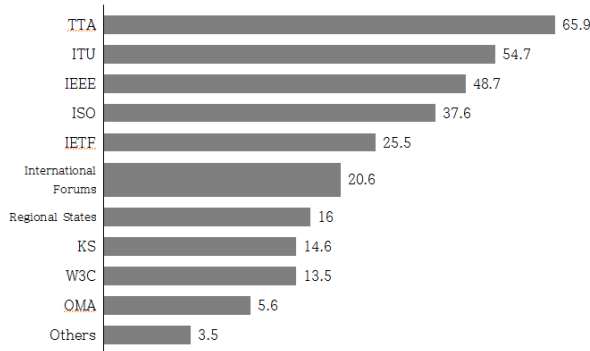
The general assembly deliberates and decides all the items regarding TTA standards (TTAS) development, amendment, and abrogation. Being the top policy-making body of the TTA, the general assembly manages seven technical committees (TC). These TCs include TC 2 (Telecommunication), TC 3 (Radio Telecommunication), TC 4 (IT Application), TC 5 (Information Security), TC 6 (Base S/W), TC 7 (Mobile Telecommunication), and TC 8 (Broadcasting). Each TC is comprised of corresponding project groups (PG). The actual standardisation works are carried out at these PGs.

3. Discussion

TTA, one of the most active ICT SDOs in Korea, has been focusing on standards development, distribution, and education. TTA also analyses national and international standardisation systems and strategic plans. In addition, they cooperate with and correspond to standardisation experts in order to support their activities. As of 2013 since 1988, a number of 10,203 standards have been developed by TTA.

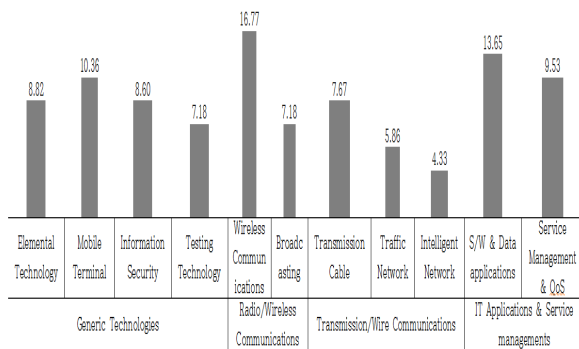
Recently, TTA researched the use of standards of individual ICT SDOs. Out of all engineers, researchers, experts, and stakeholders, 65.9% used TTA standards. This percentage was followed by 54.7%, 48.7%, and 37.% who used ITU, IEEE, and ISO standards, respectively. The result is as follows. (‘A report on the actual state of ICT standards utilisation’ , TTA)

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[Figure 3. The actual state of ICT standards utilisation of individual SDOs]

Meanwhile, TTA publishes a yearly academic paper called ‘A report on the actual state of ICT standards utilisation’. In this report, ICT technical fields are categorised into four areas and 11 particular technologies.



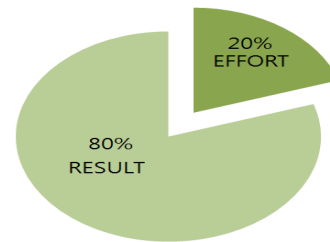
[Figure 4. The state of standards utilisation of individual technologies]

According to the figure above, the standards on wireless communications (16.77%) are being used the most, and it is followed by S/W & data applications (13.65%), mobile terminal (10.36%), and service management & QoS (9.53%). This is mainly attributed to Wi-Fi technologies and S/W technologies embedded in mobile devices.

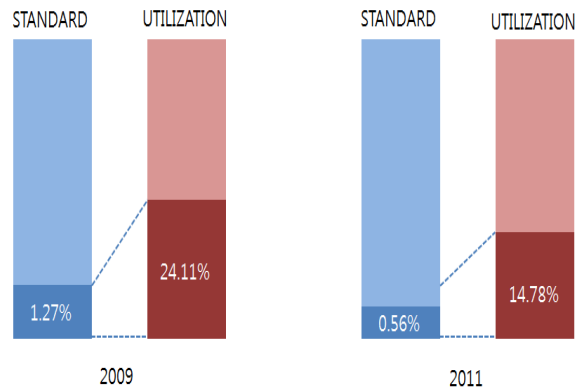
Throughout this paper, based on those reports published in 2004, 2005, 2009, and 2011, utilisation of ICT standards and the changes in demand are studied by analysing the number of downloads of standards according to each technical field. On the basis of TTA standards database, the standards developed and amended every year were researched. On the other hand, the use of ICT standards were studied by analysing the amount of standards actually being used in each technical field. Furthermore, the changes in

users’ demand were researched by investigating the trends of each technical field.

The authors analysed the use of standards of the year 2009 and 2011. In 2009, 1.27 % of all standards were accounted for 24.11 % of all used standards, and in 2011, 0.56 % of all standards were accounted for 15 % of all used standards. The result corresponds to the ‘Pareto principle’ suggested by Joseph M. Juran where for many events, roughly 80% of the effects come from 20% of the causes. In other words, only a number of 20 standards are being used out of 100 standards.



[Figure 5. The Pareto principle]



[Figure 6. The use of standards with respect to the overall standards]

According to the data, an extremely small number of standards were actually being used. This is mainly because standards developers did not consider those who are in need of these standards, but merely concentrate on developing them. Hence, it is recommended to reconsider how to amend and improve the unused standards in order for the users to access and use them more frequently. In addition, rather than developing a great number of standards, it would be much better to develop reusable standards from the perspective of the actual users.

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In order to the reuse standards from the actual users' perspective, standards developers should take the following problems and guidelines into account.

Problems

Lack of effectiveness due to tardy standardisation works

Accepting international standards without actually questioning them

Guidelines

Documentation work of international standards adequate for domestic circumstances

Accessibility and disambiguation of standards

An open-door policy in order to make a number of experts to actively participate in standardisation activities

Attracting participation from companies and applying standardisation procedures from the developmental stage

The guidelines will help users in accessing standards in a more user-friendly manner and users will eventually be able to use standards that they actually need.

4. Conclusion

People are now living in a world of fast and endless convergence of ICT and other industries, and thus, it is crucial to prepare for standards development that is directly related to future competitiveness. The use of standards can be defined as 'a collective action of standards development and execution'. According to the research result, however, a very small number of standards are being used compared with a greater number of standards which are already developed in the past. Due to this great number of unused standards, however, it would be difficult for companies to find their desirable standards. In addition, the cost of standards development and management could be unnecessarily high. Therefore, it is necessary that unused standards be managed and distinguished separately in order to optimise the cost-benefit of standards developers and users. It is also required that when developing standards, one should first and foremost think about the users and what they might need from the proposed standards. This is because, as mentioned above, standards are more used when they are developed based on the market demand.

5. Reference

[1] A report on the actual state of ICT standards utilisation (TTA, 2011, 2009)

[2] www.tta.or.kr

[3] www.ksa.or.kr

[4] http://committee.tta.or.kr/standard/general.jsp?commit_code=TC3

6. Acknowledgement

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