

TRENDS AND ISSUES IN TELEMATICS STANDARDIZATION

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ABSTRACT:

These days, vehicle is evolving from the isolated space of transportation to the third digital life space connected to the information world via wired and wireless internet and in which the various activities are possible. According to this trend, the speed of growth in the development of Telematics technology and standard is being accelerated due to the government's IT839 strategy and market needs in Korea. ETRI, TTA, and the Telematics Standardization Forum play key role in developing domestic Telematics standard of core technology needed by industry in relation with each other. The international standards are mainly developed by de-facto standardization organizations such as OSGi, OMA, ERTICO, etc. currently. In this paper, we discuss the trends and issues in Telematics standardization and future strategy.

KEY WORDS: Telematics, Standard, OSGi, OMA, ERTICO.

1. INTRODUCTION

Telematics standardization is performed in several domestic and international organizations currently. Telematics is a kind of technology implemented by the convergence of several technologies including vehicle, telecommunication, mobile terminal, ITS and so on. The standardization on these technologies is now performed in several organizations especially in de-facto standardization groups and these are more active than de-jure standardization groups like ISO and ITU.

For the domestic situation, the development of standard is led by industrial group like Telematics Standardization Forum and government-funded facility like TTA(Telecommunications Technology Association)(TTA). The Ministry of Information and Communication is also support the establishment of Telematics standard through national project like "The study on the standardization for ITS, GIS, LBS, and Telematics" performed mainly by ETRI(Electronics and Telecommunications Research Institute). The purpose of this project is to set up the strategy for standardization of these four technologies based on the systematic plan and to accomplish the synergy effect in developing the standard regarding the close technological relationship among these four areas. Recently, the Telematics PG(Project Group) in TTA was merged with ITS PG and reformed as Telematics/ITS PG to make it efficient to develop the Telematics standard based on and in relation with ITS standard.

As the international standardization organization developing de-facto standard, the most representatives are OSGi(Open Service Gateway initiative) for Telematics terminal software platform and service bundles(OSGi), AMI-C(Automotive Multimedia Interface Collaboration) for multimedia interface in vehicle network(AMI-C), and

ERTICO(European Road Transport Telematics Implementation Coordination Organization) for open standard protocol between Telematics server and terminal(ERTICO).

In this paper, we discuss on the current activities of Telematics standardization organizations and future strategy. In chapter 2, we discuss on the status of domestic standardization. In chapter 3, we discuss on the international standardization status. We explain on the Telematics standardization project performed by ETRI and discuss about the future standardization strategy in chapter 4 and finally we will make conclusions in chapter 5.

2. DOMESTIC STATUS

2.1 Overview

The establishment of domestic standard is mainly done by the Telematics/ITS PG that is reformed in the early of this year by merging the ITS PG and Telematics PG in TTA. The plan of this PG in this year includes examination and discussion on several draft for standard on Telematics and ITS which submitted by other organizations like ETRI, forum, and so on.

The development of industrial standard has also being done in the Telematics Standardization Forum from last year. This forum is composed of three working groups: Terminal W/G, Interoperability W/G, and Contents W/G. Many companies in the related industrial field like telecommunication operator, car manufacturer, terminal maker, software developer, contents provider are participating in each working group and developing de-facto standard for Telematics. ETRI also plays role in the forum by relating the work with TTA and the national project.

2.2 TTA Status

Telematics PG was established in 2004 according to the government's IT839 project with the role of surveying the related standard and technology, developing standard, studying interoperability with the national standard, and so forth. Various parts of industry and institute were participating in this PG and preceded Telematics standardization on the core technological parts like server, terminal, and telecommunications.

Meanwhile, it was suggested that Telematics has close relationship with ITS in technology so the standardization of Telematics need to be done together with ITS to guarantee the efficiency and synergy effect. So the Telematics PG was merged with ITS PG and reformed as Telematics/ITS PG in the early of this year. Table 1 shows the standard items and status that have been established in this PG.

Table 1. Standard items and status in TTA

No	Standard item	Status
1	Telematics standard reference model	P
2	Telematics terminal S/W platform stage1: Architecture	P
3	Traffic information service for Telematics stage1: Functional requirements	P
4	Protocol between Telematics terminal and Telematics Service Provider server stage1: Functional requirements	D
5	Telematics services and system	D

(In the Status column, 'P' means 'Published' and 'D' means 'in Development')

2.3 Forum Status

Telematics Standardization Forum was established in 2004. This organization is composed of three working groups currently including Terminal W/G, Interoperability W/G, and Contents W/G. Each working group has developed several standards and it is also developing standards and discussing additional new work items now. Table 2 shows the standard items and status that have been dealt with in this forum.

3. INTERNATIONAL STATUS

3.1 Overview

The international standards are mainly developed by de-facto standardization organizations such as OSGi, OMA, AMI-C, ERTICO, etc. and some standard items are also dealt with in de-jure standardization organizations such as ISO and ITU.

OSGi is for Telematics terminal software platform and service bundles, AMI-C is for multimedia interface in vehicle network and ERTICO is for open standard protocol between Telematics server and terminal. There are also many standardization organizations on the related technologies like ITS, LBS, and GIS.

Table 2. Standard items and status in Telematics Standardization Forum

Standard item	W/G	Status
Telematics terminal S/W platform stage1: Architecture	T	P
Telematics terminal S/W platform stage2: Functional requirement	T	D
Protocol between Telematics terminal and Telematics Service Provider server stage1: Functional requirements	I	P
Protocol between Telematics terminal and Telematics Service Provider server stage1: Binary format and XML format	I,C	D
Traffic information service for Telematics stage1: Functional requirements	C	P
Node-link network for Telematics	C	D

(In the Status column, 'P' means 'Published' and 'D' means 'in Development'. In the W/G column, 'T' means 'Terminal W/G', 'I' means 'Interoperability W/G', and 'C' means 'Contents W/G'.)

3.2 OSGi Status

OSGi was founded in 1999 and its mission is to specify, create, advance, and promote an open service platform for the delivery and management of multiple applications and services to all types of networked devices in home, vehicle, mobile and other environments(OSGi).

There are three EGs(Expert Groups) in OSGi developing standards: Core Platform Expert Group(CPEG), Vehicle Expert Group(VEG), and Mobile Expert Group(MEG).

Among these EGs, the VEG is working on tailoring and extending the generic OSGi Service Platform core specifications for use in in-vehicle environments. The VEG receives much of the input from automotive, Telematics and transport member companies to ensure the specifications produced are well suited to their target environment(OSGi).

Several companies including BMW, Siemens VDO, ProSyst, and IBM are participating and ETRI is also spreading activities in VEG by suggesting three RFPs(Request For Proposals) currently.

VEG is doing final review on the RFCs(Request For Comments) for R4 scheduled to be released soon. Figure 1 shows OSGi architecture and Figure 2 shows the progress of OSGi specifications.

3.3 AMI-C Status

AMI-C is representing many of the world's vehicle producers, coming together to create an open and free standard that will allow in-vehicle electronics to be easily incorporated into vehicles. Its vision is to make it possible that all of the world's automotive manufacturers and their suppliers achieve consensus on common core

requirements for mobile information and entertainment systems

Currently, the standardization activity of AMI-C is mostly taken over by OSGi.

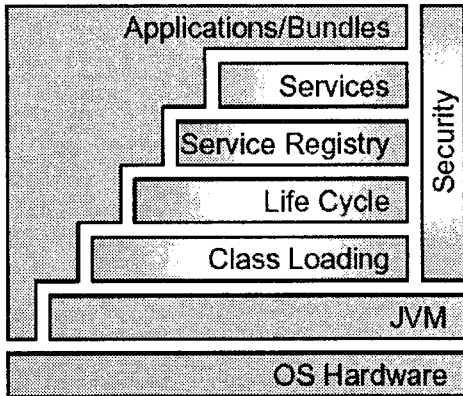


Figure 1. OSGi architecture

3.4 ERTICO Status

ERTICO was created in 1991 as a cooperative company with equal shareholding partners. ERTICO's mission is to promote and support the efficient research, development and implementation of ITS and services in Europe, contributing to better sustainable mobility, environmental and societal aspects and user satisfaction, with acceptable economic returns for its partners(ERTICO).

One of the most representative projects having been done by ERTICO is GST Project(Global System for Telematics Integrated Project). GST aims to create the technology and cooperation necessary for an open market for online Telematics services. This will allow different actors to operate services using the same multi-bearer service delivery infrastructure and in-vehicle terminals.

GST has broken down the overall complexity of issues by organizing its activities into different sub-projects which seek to realize specific results that require the mobilisation of certain skill sets. GST makes the distinction between technology-oriented and service-oriented sub-projects, which in turn, reflects its two high-level objectives: namely the creation of an open market for on-line services and the deployment of safety services reducing of the number of fatal accidents.

The technology-oriented sub-projects are Certification, Open Systems, Service Payment and Security. The service-oriented sub-projects are Enhanced Floating Car Data, RESCUE and Safety Channel

The duration of this project is from March 2004 to March 2007, funding through EC Directorate General Information Society

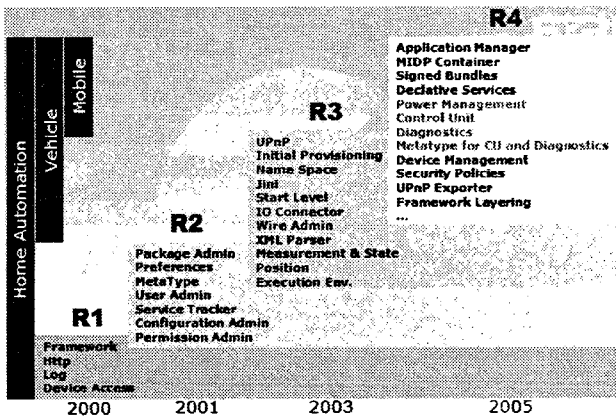


Figure 2. Progress of OSGi specifications

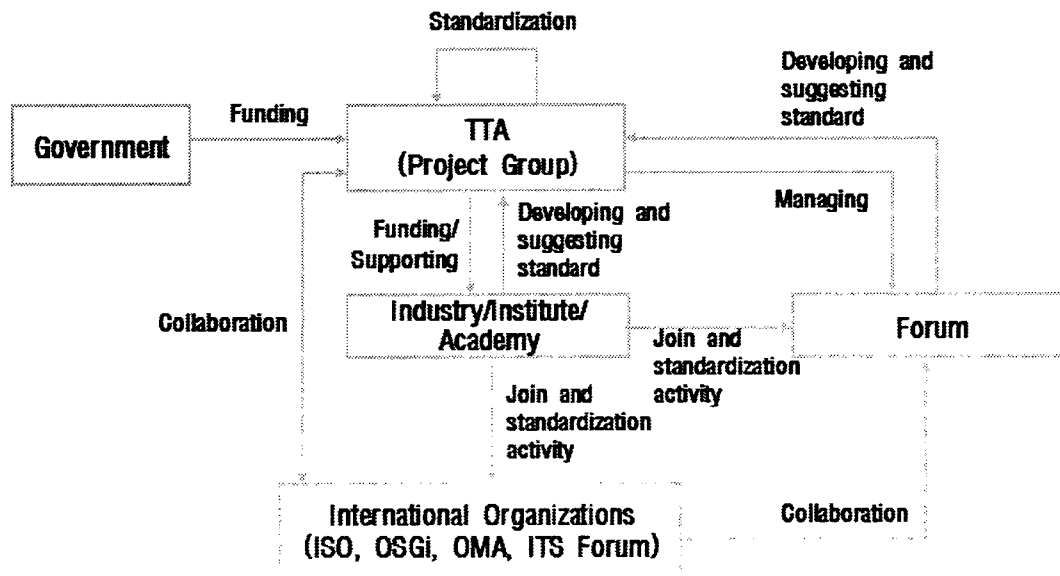


Figure 3. Telematics standardization strategy

4. STANDARDIZATION STRATEGY

Korea government is supporting the establishment of Telematics standard through national project like “The study on the standardization for ITS, GIS, LBS, and Telematics” To enhance the efficiency and usability of standard, the standardization must be proceeded in a strategic and systematic plans converging the related technology fields.

TTA have been establishing the mid-term and long-term standardization strategy for Telematics and ITS for several years. This strategy can be a blue print developing standard for core technology items in relation with the related IT technologies. The report of the strategy for next year is going to be published at the end of this year.

Figure 3 shows the strategic process of Telematics standardization.

5. CONCLUSIONS

We’ve discussed on the trends and issues in Telematics standardization. We discussed on the domestic status by looking at what’s going on in TTA and Telematics standardization Forum. As the international standardization organization, OSGi, AMI-C, and ERTICO were look briefly.

Korea has world best IT infrastructure, so there is a lot of opportunity leading the technology and creating new market and business model. To grasp this opportunity, the well-planned strategy and systematic development of standard are fundamental necessity.

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