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INTERNATIONAL ELECTROTECHNICAL COMMISSION

STANDARDIZATION MANAGEMENT BOARD

SUBJECT

SMB meeting 151, agenda item 5.1, Tokyo

Report of SMB Systems Evaluation Group-1, *Smart Cities*, after their meeting held on 23/24 September 2014 in Atlanta, United States

BACKGROUND

SEG-1 Smart Cities held its 3rd meeting on 2014-09-23/24; its next meeting is planned for 9/11 March 2015 in London.

The report is in two parts:

Part A – SEG-1 Smart Cities recommendations submitted to the SMB for formal approval: There are no recommendations in the report from the meeting for SMB approval.

Part B – For SMB information for its meeting to be held in Tokyo, SMB SEG-1 submits the following report with an update of its current activities.

ACTION

The SMB is invited to note the information provided in the report from SEG-1 meeting and to **submit any comments**, using the IEC Technical Server, **before 2014-10-31**.

Part A: Recommendations for approval: None

Part B: Information

The following report summarizes the main discussions and achievements of the 3rd meeting of Systems Evaluation Group-1 Smart Cities.

The SEG-1 final report, with recommendations to the SMB, is expected to be submitted for the June 2015 SMB meeting.

The Atlanta meeting was attended by 47 members. Representatives from IEC, ISO, JTC1, IEEE, and the World Council on City Data presented various reports on their activities and the need for teamwork in organizing standardisation activities across the smart city domain.

It was declared that collaboration with ISO, ITU-T and other SDOs is essential. SEG-1 recognizes that the IEC shall be a part of the standard developing activities in the field of smart cities due to electricity being core to any urban infrastructure system and the key enabler of cities development. As a result, the IEC has a specific role to play in the development of a smart city's set of standards. However SEG-1 fully acknowledges that close cooperation with the ISO TCs/SCs is essential so as to attract the necessary expertise, including city authorities, city planners, citizens and infrastructure operators. IEEE is also recognized as having a vital role in smart city development and SEG-1 welcomed their participation at the Atlanta meeting and hopes for continued partnership.

Since cities will continue to evolve, SEG-1 strongly suggests the structure for coordinating SDOs in the field of smart cities should be flexible.

B.1 Notable decision taken by SEG-1

SEG-1 agreed to prepare a "high level diagram" (i.e. simple map) to be proposed to ISO/TMB/SAG and ISO/TC268/SC1 for future coordination between the IEC and ISO in order to address any overlap/duplication of efforts for Smart Cities. A first draft of this diagram is expected by mid-November.

B.2 Presentations from outside of the IEC

SEG-1 received presentations from Mr. William Ash from IEEE, Mr. Jose Luis Hernandez from the World Council on City Data, and Dr. Yoshiaki Ichikawa from ISO/TC 268/SC 1.

B.3 Liaisons

SEG-1 maintains active liaison with the following groups (alphabetically listed with liaison officer):

- IEC/MSB smart city whitepaper group: Dr. Fumio Ueno/Peter Lanctot
- IEC/SyC on Smart Energy: Dr. Fumio Ueno/Peter Lanctot
- IEEE Smart Cities Initiative : Mr. William Ash
- ISO/TC 268: Mr. Isao Endo
- ISO/TC 268/SC 1: Dr. Yoshiaki Ichikawa
- ITU-T/SG 5/FG-SSC: Ms. Yuanchao Chen
- JTC 1/SG 1 on Smart cities: Ms. Sun Wei
- JTC1/SC39 Sustainability for and by Information Technology: Peter Lanctot/Sallie Seitz

B.4 Working Groups

SEG-1 has established 8 working groups based on specific city challenges. As previously reported to the SMB, the WG results will become the core part of SEG-1's final report to SMB, as the future proposal of SyC on Smart Cities will consist of the WG results including the identification for new systems level standardisation activities within the IEC and ISO.

SEG-1 received status reports from each WG. SEG-1 also created a new working group, [WG8-Mobility and logistics (in the context of Smart Cities)], proposed by Germany. The working groups are populated with members representing IEC, ISO, JTC1 and IEEE.

SEG-1 wishes to update the SMB on each working group's activities since its last plenary meeting in Berlin held in February 2014, as seen below:

WG1-City Service Continuity: Using the MSB white paper "Microgrids for Disaster Preparedness and Recovery" as one reference the work of WG1 covers various city services, a core of which is electricity continuity, including public services, medical services, communication systems, transportation systems and economic activities.

Its goal is to identify standardisation items in aspect of "City Service Continuity" dealing not only with city service continuity when a critical situation occurs, (such as a natural disaster), but also situations in cities whose infrastructures are unstable, even in normal time.

WG2-Urban planning and simulation system: Examines the smart city challenge for intelligent urban planning and design, the optimization of allocated resources in a city, and how to cope with the challenge of rapid urbanization. Proposals were presented to the plenary and these proposals will be refined and updated as part of the SEG-1 final report in May 2015.

WG3-City Facilities Management: Refers to the management of underground piping in the city. Each infrastructure system has its own network map or pipework map and maintenance & operational data, these maps and data are not always designed to be shared with other infrastructure systems. The challenge is to realize the data fusion mechanism for underground pipelines management and to provide a support system on city overall planning, construction, operation, management, maintenance and services. The goal is to provide a framework for a unified city service system based on data collection, storage of information and integrated systems.

WG4-Use case: Smart Homes: This WG considers Smart Home to be a subsystem of a smart city and their target is to collect smart home use cases to help the SEG1 to decide the working scope, boundary and relationship with other TC/SC. The WG collected and researched on multiply smart home use cases, especially the smart home systems which are integrated in smart city system and connected to smart city platform. Use cases from Japan, Korea and China have been collected.

WG5-Use case: Smart Education: This WG collected different smart education use cases. These use cases are important elements to evaluate the educational "smartness" level in a smart city. By collection and research on such smart education use cases, a clear technical and standardisation development status are deduced and this work provides references for the future smart education and smart city standardisation activities.

WG6-Smart City Assessment: Is assessing the integration and interoperability of city systems that are crucial for a city to achieve its "smart" goals and purposes. The WG is collecting and researching multiple smart city assessment standards, especially on those that need to be redefined. The WG will also propose to the SEG a smart city assessment methodology and reference model.

The WG sees the need to define the elements for a uniform and scalable assessment methodology which takes into account the dependencies across industries and different levels. The re-use of existing assessments at lower levels of aggregation scaling up to the European level is a must to avoid "reinventing the wheel".

WG7- Standards development for smart cities using the City of Johannesburg- in a rapidly emerging country- as a piloting benchmark for smart cities implementation: The WG will use the City of Johannesburg's Smart City Strategy, the Johannesburg City context, and contributions from other international and African cities to develop a framework and to create a library of required standards for smart cities implementation. The intention is that in using a

developing, African city as a model, the WG will be able to positively influence future standards that may be developed by the IEC for Smart Cities.

SEG 1 recognized the unique role of WG7 to involve essential stakeholders and to 'road test' the standards to be developed as part of a working smart city. WG7 has scheduled 4 meetings. These meetings will take the form of interactive and highly collaborative workshops involving participants from the City of Johannesburg, other African Cities, business and the public sector.

WG8-Mobility and logistics (in the context of smart cities): This new working group proposed by Germany was approved by SEG-1. It will report to the SEG in March 2015.

B.5 Task Group Actions

SEG-1 received reports from each of its 3 Task Group leaders.

Task Group 1 is inventorying the relevant and existing smart city standards, metrics and city strategies. It is requested to finalize the collection of data by mid-November 2015.

Task Group 2 presented on smart city Use Cases and architectures models. Mr. Johannes Stein from TC8 informed the SEG (as part of a *GoTo Meeting* conference call) of the Use Case repository that is under development in TC8/WG7. This repository was originally developed for the smart grid use cases; however Mr. Stein's presentation explained how it can be applied towards smart cities. TG-2 of SEG-1 will look further into the applications of this database.

Also, TG-2 acknowledged to SEG-1 that the development of reference architecture model for a smart city will be a huge undertaking due to the many levels within a city that need to interrelate. At this stage, SEG-1

Task Group 3 is responsible for the mapping of closely related activities and definitions and terms. It also presented an action plan to the SEG-1 which is scheduled to be finalized by January 2015.

B.6 Scarcity of Resources

A statement from the German National Committee (Annex A) was presented to the meeting. The DE NC expressed concern with the numerous smart city activities taking place simultaneously around the globe, which leaves many experts unable to participate consistently at a professional level.

SEG-1 discussed possible solutions for resource scarcity and proposed solutions such as:

- a) Coordination of IEC and ISO activities on Smart cities; Sharing NWIPs with ISO (after SyC establishment)
- b) Joint working group (after SyC establishment)
- c) Coordination of TC/WG meetings in conjunction with other relevant groups

- These ideas can be proposed in the final SEG1 report to SMB and also be proposed to ISO/TMB/SAG.

B.7 Future activities

The task groups and working groups and working groups will continue with their tasks in preparation for the next SEG-1 meeting in London on 9/11 March 2015.

Annex A

Statement of the German National Committee *Smart Cities*, submitted by DIN/DKE, for consideration by IEC/SEG *Smart Cities* Chairman Advisory Group (2014-08-14)

The German national committee on *Smart Cities*, consisting of roughly 50 representatives of industry, municipalities, and research, highly recommends the inclusion of the following ISO technical committees when investigating the creation of a Systems Committee reporting to the International Electrotechnical Committee (IEC). The topic of *Smart Cities* involves (by definition) all facets of living in the modern urban environment. While buzzwords like *Smart Grid* and *Smart Home* have gained a lot of interest in recent years, other developments in the urban space are already in the process of being implemented and have been introduced to various ISO technical committees; i.e. waste management, environmental and energy management, urban transport systems, fresh water and waste water management. Establishing a Systems Committee without actively involving technical committees under the umbrella of ISO and IEC is short sighted and bound to lead to an incomplete appraisal of the *Smart Cities* situation. At the same time, however, there is a real risk for some topics to be covered multiple times, as IEC as well as ISO are working on a comprehensive overview of the *Smart Cities* standardization landscape. Prior to establishing a Systems Committee at IEC, DIN/DKE requests the proposal of concrete projects/NWIP for all IEC/SEG1 members to evaluate, in order for the Systems Committee to address. Furthermore should the mapping process be synchronized between IEC and ISO with the result being one standardization roadmap, with clear proposals as to which technical committee (at ISO, IEC, or jointly) should do which NWIP. That is, new work items should be assigned by IEC and ISO to the appropriate bodies at IEC or ISO.

The German National *Smart Cities* Committee has a high interest in participating in the standardization projects to be initiated by ISO and IEC. However, the number of international meetings - and hence initiatives - must be limited to a manageable number in order for the experts to participate and provide professional input.

We therefore recommend pro-active collaboration with the following ISO committees:

ISO/TMB Advisory Group *Smart Cities*

ISO/IEC JTC 1 Information technology

ISO/TC 21 Equipment for fire protection and fire fighting

ISO/TC 59 Buildings and civil engineering works

ISO/TC 92 Fire safety

ISO/TC 138 Plastics pipes, fittings and valves for the transport of fluids

ISO/TC 146 Air quality

ISO/TC 147 Water quality

ISO/TC 154 Processes, data elements and documents in commerce, industry and administration

ISO/TC 180 Solar energy

ISO/TC 184 Automation systems and integration

ISO/TC 203 Technical energy systems

ISO/TC 204 Intelligent transport systems

ISO/TC 205 Building environment design

ISO/TC 207 Environmental management

ISO/TC 223 Societal security

ISO/TC 224 Service activities relating to drinking water supply systems and wastewater systems - Quality criteria of the service and performance indicators

ISO/TC 241 Road traffic safety management systems

ISO/TC 242 Energy Management

ISO/TC 262 Risk management

ISO/TC 267 Facilities management

ISO/TC 268 Sustainable development in communities

ISO/TC 269 Railway applications

ISO/TC 274 Light and lighting

This list is not necessarily exhaustive and should be evaluated by IEC/SEG 1, IEC/ISO JTC1, and ISO/TMB Advisory Group *Smart Cities*.

Thank you for your attention.

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