

Standardising the Internet of Things – Is Today’s System Adequate?

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I. INTRODUCTION AND MOTIVATION

The ‘Internet of Things’ (IoT), and succeeding technologies, will change people’s lives perhaps even more dramatically than Information and Communication Technologies (ICT) have done so far.

To deploy this technology beneficially for all stakeholders, internationally agreed standards will be a sine-qua-non. Yet, these technologies to be standardised will have an unprecedented impact on the environment within which they will have to function. The standards setting process will need to reflect this in some way. As a consequence, it will become essential to identify new ways how to allow all interested parties to participate in this process, and to voice requirements and concerns. Accordingly, the standards setting process must not be limited to purely technical matters and to economic issues, but will also somehow have to take into account, for example, social and political aspects. To this end, new processes may have to be devised.

II. RELEVANT STANDARDS BODIES

Eventually, virtually all Standards Setting Bodies (SSBs) active in the ICT sector will – in one way or other – contribute to the IoT. However, the number of SSBs engaged in standardisation efforts specifically for the IoT is comparably limited. This is largely due to the fact that today ‘standards for the IoT’ is more or less synonymous with ‘standards for RFID and associated applications’.

A. Analysing SSBs’ Characteristics

These days, standards are primarily being developed in the fields of Technology, Data Content, Conformance, Network, and Applications.

Several authors/entities have looked at the RFID/IoT standardisation environment, aiming to identify the key players. A synthesis of their work yields the following list of the most important SSBs in the field: ISO, ISO/IEC JTC1, ITU-T, ETSI, and EPCglobal. In addition, this group of SSBs is working on supplementing/related standards IEC, CEN, CENELEC, IEEE, and IETF. Their procedures will be analysed to find out if, and to which degree, they foster – or hinder – participation by all groups of stakeholders.

B. The Barriers

Based on the above analysis, preferences and disadvantaged groups for stakeholders may be identified for each SSB. For example, EPCglobal has a clear focus on users, whereas ETSI’s voting system clearly favours large companies. Such differences suggest that, in turn, certain stakeholders should favour certain SSBs (if such a choice exists, that is).

III. LINKS BETWEEN SSBs

Numerous links at different levels, and various forms of cooperation agreements, exist between the organisations discussed above.

These links will be discussed, with a view towards options that may exist for stakeholders to influence one SSB through participation in another, more ‘forthcoming’ one, and subsequent exploitation of the links between the two (e.g., through a PAS process; see Figure 1).

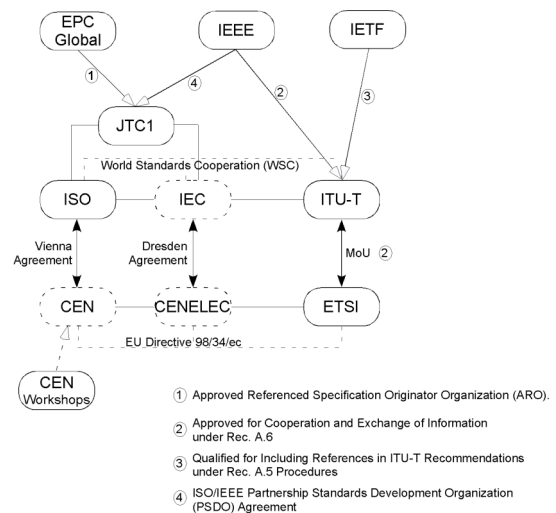


Figure 1. Links between discussed SSBs

IV. RECOMMENDATIONS

Finally, some (preliminary) recommendations will be made how the ‘third estate’ in standardisation could effectively, and efficiently, contribute to the standardisation of the IoT.