# Has the time come to discuss technical affordances of standards?

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**Abstract:** Formal standardization communities are searching for ways to improve their approach. Process improvement is often the primary focus for this discussion. This paper explores the possibilities to put more emphasis on the technical affordances of standards. A case study is presented of a proposal to reform European standardization practice. Technical quality issues are now put forward as important metrics. However, the technical quality criteria are still vague and more research is needed to come up with the dimensions for a quality discourse on technical aspects of standardisation.

**Keywords:** standardization, process improvement, technical standards quality

## 1. Introduction

Doubt is raised about the positive contribution of standardization to the development of the emergent field of learning technologies [1]. In times of crisis and self-scrutiny, one gets a chance to ask the more fundamental questions of how standardization is handling issues of quality related to processes and outputs. The purpose of this paper is to create awareness of this discussion, based on a small case study of a proposal from the European Commission (EC). EC has launched an "European Union standardization proposal" to be implemented from 2013. The EC wants to speed up the time it takes to make standards; to expand the remit of standards to cover services, management systems, environmental and social issues; and to make sure that appropriate standards developed outside the Europe are being implemented and used [2]. Similar initiatives are seen also in other parts of the world, e.g., in Australia [3]. These initiatives seem to take the technical quality of the standard as given; it is the market relevance and uptake that are identified as challenges to be addressed. However, a good purpose and justification for a standard is no guarantee for the standard to be well scoped and designed [4]. Therefore, the question raised in this paper is whether we see any opening for discussing technical affordances of standards in the current initiatives. And if so, how should this discussion be structured?

## 2. Related work

Hoel and Mason [5] have argued that qualities of standards should be addressed both in relation to process and product. With 'process' is meant the activities setting up the work towards a standard, i.e., choosing the right standard setting body, organizing a transparent process, ensuring stakeholder engagement, etc. With 'product' is meant the outcome of the standardization process, the standard itself. An improved process is not possible without a better understanding of the relationships between the three parts that make up standardization: process, product, and domain. The last part influences and is influenced

by both process and product, as e.g. the domain supports certain processes and is best served by certain standards.

The quality of the standardization product, especially within the ICT domain, has often been discussed from a top-down perspective focussing on principles like correctness, clarity, relevance, comparability, economic efficiency, and systematic design [6]. However, another bottom-up perspective is also possible, discussing if the standard is well-formed, understandable, of the 'right size', etc. [7]. A third approach would be to discuss quality in relation to adoption, market uptake and software quality [8].


## 3. Case study: Accepting the work of others – adapting European standardization

A two page annex of an EC proposal [2] draws up the "requirements for the recognition of the technical specifications in the field of ICT". Three classes of requirements are identified, which this paper terms Relevance, Process and Technical Quality.

1. **Relevance** requires that the specification is accepted in the market and does not hamper interoperability.
2. **Process** requirements deal with openness, consensus, and transparency,  in addition to the mandate and aim of the organization that has developed the specification – all known operational directives of the international standards bodies.
3. **Technical Quality.** The six requirements in the EC proposal related to the Product, i.e. the technical specification in question. *Maintenance*, *availability*, and *intellectual property* rights relate back to the process and the operational qualities of the organization that publishes the specification. These first three requirements pertain to the standard as a document. The last three requirements to externally developed standards relate directly to the technical characteristics of the specification: 1) *relevance*; 2) *neutrality and stability*; and, 3) *quality*.

The *relevance* criterion has two parts: (i) the specifications should be effective and relevant; (ii) specifications need to respond to market needs and regulatory requirements [2]. The first part is partly redundant (defining relevance by being relevant). However, it is noteable that the two parts are not merged, leaving a space related to effectiveness that is separate from the market and regulatory relevance space. This could be interpreted as an invitation to identify and discuss characteristics of the specification in question that are related to how the designed artifacts, e.g., information model, vocabularies, etc., works in a technical implementation.

The *neutrality and stability* criterion has also a mix of market and technical concerns, addressing (i) market distortion, competition and innovation; (ii) preferring performance orientation rather than development based on "design or descriptive characteristics"; and (iii) standards "based on advanced scientific and technological developments". The part about performance orientation, seems to invite to a discussion about principles of Information Systems Design, preferring specifications that 'work' to specifications that are 'developed the right way'.

The last criterion on *quality* is split in two parts. It may be easy to judge whether "standardized interfaces are not hidden or controlled by anyone other than the organizations that adopted the technical specifications". The part on "quality and level of detail" leaves on the other hand more room for discussion. The quality and the level of detail should be "sufficient to permit the development of a variety of competing implementation of interoperable products and services" [2]. Here the level of detail points directly to the design characteristic of the specification. What is the right level of detail? Is it "just enough" or is it necessary to strive towards a level of "correctness", giving an extensive and fully covered representation of the domain in question?

## 4. Discussion

The backdrop for this study is participant observation over a decade from both European and international ITLET standard groups, and a study of Directives setting up procedures for formal standardization [4]. When setting up ITLET projects in CEN and ISO there is nothing in the procedures that encourages discussions on approach, methodologies and general technical aspects of standards. This may be explained by the Directives [11], which stress methods neutrality. However, it could be argued that more emphasis on questions like rationale and scope, technical approach, base standards, technological context, etc. could strengthen the technical quality of the output of standardization. Therefore, it is interesting that EC requirements raise discussion about the technical affordances of standards as part of an effort to define what a good standard is. Even if the main focus is on acceptance in the market place, e.g., through a due process, technical design qualities are not seen as out of scope or in breach with methods neutrality.

## 5. Conclusions

This study has described standardization as an interrelationship between the standardization process, the outcome of standardization, and the domain served by standardization. Standard governance has mostly been concerned with process aspects of standardization. Also this case study shows that the issues related to acceptance in the market space seem better defined than technical issues. This points to the need for more theoretical work in this area. However, when a dominant stakeholder as the European Commission opens up for questions related to technical affordances of standards it gives an impetus to explore new avenues for a standardization discourse. What lies in an "effective" standard and the optimal "level of detail" [2] are questions that should be put forward for further research.

## 6. References

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