

# The Relevant Question and the Question of Relevance

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**Abstract:** This paper brings together two perspectives on current developments in information and communications technology (ICT) utilized for the purposes of learning, education, and training (LET). One perspective is concerned with governance and legitimacy issues regarding the process and relevance of standards development; the other, is concerned with the role of discerning relevant questions in LET and the potential scope for innovation that might develop tools to support such discernment. Discussion of information systems architecture is introduced as a means to set the context and provide a framework for bringing together an overall narrative and coherence to these two perspectives. Questions initiated by ‘why’ are of particular interest because they typically demand an *explanation* in natural language to satisfy the questioner. By focusing on ‘why’ as a key ‘primitive’ of enquiry the authors present an approach that might inform improved processes of ICT for LET (a.k.a ITLET) standardization.

**Keywords:** standards governance, ICT standards, e-learning, information systems architecture, enterprise frameworks, ITLET

## Introduction

Much of the seemingly unfettered domain of Web 2.0 would not exist without standards. Nor would the information and communications technology (ICT) used during e-learning. Despite this, stakeholders and other beneficiaries of these technological achievements have little time for standards development, perceive it to be burdened by archaic process or even irrelevant and, if anything, a hindrance to innovation: in short, the legitimacy of standardization is being questioned. So the question arises: *why?*

This paper explores how *why*-questioning could be used as an analytical lens to study, and perhaps improve, the process and products of ITLET standardization, and hence its legitimacy. A validation of the value of *why*-questioning is highlighted in two case studies. Based on these studies the authors propose strengthening the motivation, purpose, and rationale for standards making in order to contribute to the ongoing discourse in the community how to improve the legitimacy of both the ITLET standardization process and products.

## 1. Related research

Cooper has pointed out that “the challenge for learning technology standardization is that the dominant and uniform processes are generally either not there or not easily seen” [1].

He used the terms complicated, complex, emergent and adaptive to characterize the ITLET domain. In order to design well scoped ITLET standards these characteristics need to be considered and made sense of.

### *1.1. Zachman Framework – Why as a part of purpose description*

The Zachman Framework is arguably the most influential recent Enterprise Architecture Framework and was inspired by classical architecture. Different “players in the game” (the owner, the designer and the builder) all had different fundamental architectural representations [2].

Zachman gives emphasis to “three descriptions” of information systems architecture: *what* the thing is made of (or the “material” description); *how* the thing works (or the “functional” description); and *where* the flows exist (the connections, or the “location” description). In an appendix he includes “for further reference” characterizations of additional descriptive types related to people (*who*), time (*when*) and motivation (*why*).

The success of the Zachman Framework is clearly linked to the use of the simple questions (‘primitives’) so familiar to all user groups (hence also the key decision makers of whether to use enterprise architecture). The primitives mapped nicely to different aspects of information systems design: Data (*what*), Function (*how*), Network (*where* & *who*), People (*who*), Time (*when*) and Motivation (*why*). However, as with Zachman’s first paper some constructs take precedence over others in the day to day running of business. Thus, Jovanovic *et al.* [3] have mapped the 13 diagram types in Unified Modeling Language to the Zachman Framework, showing that the more concrete aspects are better covered with representational tools than the motivational.

### *1.2 A Model for Sense-Making*

Mason [4] presents a model in which *why*-questioning is viewed as an important instigator of sense-making and hence, learning and knowledge creation. In this model, emphasis is placed upon a set of primitive questions: *Who*, *What*, *When*, *Where*, *How*, and *If* [4]. The immediate consequence is that without *why*-questions, and their answers explicit, understanding is limited. This model can also inform the substance of the “*why* description” of the Zachman Framework.

In his brief treatment of the *why* description Zachman suggests most value might lie in descriptions that emphasize “*why* choices are made”, which is to do with perspectives of *motivation* and *purpose*. While most *why* questions will typically demand an *explanation* as an ‘answer’ or response there also exists significant semantic and syntactic diversity among them to present a challenge for designers of ICT tools that specifically support *why*-questioning. Consider, for example, the following questions:

*Why did you vote that way?*

*Why is this standard necessary?*

*Why has this been proposed?*

*Why does the reporting template require all these fields?*

*Why should we implement this procedure?*

*Why do our stakeholders think this work is irrelevant?*

*Why is standardization misunderstood?*

*Why do industry consortia ‘compete’ with standards bodies?*

*Why all this bureaucracy?*

## 2. Deeper Analysis through Questioning *Why*

From a theoretical perspective this paper is concerned with the role of *why*-questioning in the context of analyzing standardization activities. It is informed by legitimacy models [5], lifecycle models [6], process models [7] and information system design (ISD) models [8]. The aim is to contribute to the construction of an analytical lens to be used in identifying the Key Knowledge Sharing Points [9] that are critical for making design decisions.

From an information science perspective *who*, *what*, *when*, and *where* collectively form what can be termed the ‘primitives’ of text-based information retrieval. However, Learning, Education and Training involve more than the retrieval and exchange of information. In order to harness sufficient knowledge from the different stakeholders that might inform the design of innovative future technologies, questions also need to be initiated by *how* and *why*.

Evered [10] offers a classification in which the explanative function of responses to ‘why’ questions is analyzed according to three classes of explanation: Causal (Why E? Because C (C= cause)); Teleological (Why E? In order to P (P = Purpose)); and Gestaltic (Why E? For these reasons, R (R = Reasons)) [10]. This classification assists in sharpening the dimensions of motivation and purpose as the one kind: teleological. And while the other two dimensions are important when considering the design of ITLET systems per se, the causal and gestaltic aspects of *why*-questioning are not particularly useful in the kind of analysis and explanation required in standards development.

## 3. Case studies

Two case studies are chosen to see how *why*-questioning has been part of standards adoption and development within learning, education and training. A qualitative document study was carried out using archival documents and participant observations analyzed through an iterative process of coding and interpretation.

### 3.1 *The Sharable Content Object Reference Model (SCORM)*

When the current version of SCORM [11] was balloted in ISO/IEC JTC1 SC36 two national bodies observed there was no scope statement in the standard. Despite being successful in the training market, questions of what pedagogical approaches SCORM supports have often been raised by stakeholders. Such questions are clearly to do with efforts to understand the model – *what* its purpose is, *how* it achieves its goal, *who* needs it, and *why* it is relevant.

In early 2011 when the US Department of Labor issued a bid mandating SCORM for e-learning systems and content the scope discussion resurfaced. After a few weeks the Directive was rescinded, and then the full range of SCORM shortcomings had been presented in a condensed and focused way the authors find no parallels to in the discourse that has been going on for nearly a decade.

This small case study shows that the question why the standard should be used outside “some very niche training needs of the Department of Defense” (as seen by the head of a competing standards organization) is not addressed by the “entity that controls SCORM” either in the standard documents themselves or in marketing presentations. The

SCORM overview document specifies under the term “ilities” a “Conceptual Starting Point” (Accessibility, Adaptability, Durability, Interoperability and Reusability). Clearly, a rationale can be inferred from this, but, as one balloting comment pointed out these are marketing terms rather than an explicit discussion of scope.

### *3.2 New work item (NWI) proposals – why do the right thing*

The second case study analyzes 16 New Work Item (NWI) proposals presented to the European Committee for Standardization (CEN) Workshop on Learning Technologies (CEN WS-LT). How do the proposals address the purpose of the technical artifact that should be the outcome of the standardization process? The international rules for how to structure and draft international standards, building on a *performance* approach, can be seen as guiding the project description in the direction of the economic-political context, but leaving out the aspects more related to the domain, e.g., the pedagogical need for the standard, or why it is relevant. A pragmatic response is often chosen as the authors of the proposals know that the funding agency is more interested in market impact than technical soundness. Our analysis shows that the approach towards both object (standard) and method is discussed indirectly by relating the proposed work to alternative standards or candidate standards for harmonization, extension or profiling.

Even if the *why* question is not explicit in an NWI proposal it is sometimes discussed in order to know what “the right thing to do” might be. However, participatory observation of the CEN WS-LT over a number of years shows that when a project is accepted, work commences immediately on the data and information models.

## **4. Discussion**

Good standards governance is about maintaining robust processes of scoping, specifying, and negotiating that ultimately lead to the adoption of standards that are fit for purpose. Ensuring trust from stakeholders of both process and outcome is essential. The challenge is that investing in standards-based development comes with certain risks – for example, mature standards are not always in synch with trends in innovation or stakeholder requirements. It is clear from the case studies presented that process legitimacy is easier to establish than the product legitimacy. In the case of SCORM, process legitimacy was installed partly through effective marketing and complementary actions (e.g., establishment of ADL laboratories worldwide), and the fact that the standard was mandated by the US Department of Defense (DoD). The process legitimacy was boosted, however, when the DoD submitted SCORM for standardization by ISO in 2007.

However, good governance is not only about openness and transparency; it is also about accountability made explicit through clear protocols and rationale for decisions taken. Clear rationale and explanation is what *why*-questioning seeks. Thus, when a New Work Item is presented to a standards group a well-defined scope is required before delivering a specification fit for purpose. The NWI study above also shows that critical scoping is not always driven by questions that give directions for technical specification work. When ‘*why this standard?*’ is asked within a political or economic context only, the question of ‘*why this particular design of the artifact?*’ is left out. While this latter question may not seem technically essential explanations that address it would ensure better buy-in and a more effective process.

As an analysis tool *why*-questioning requires clear explanation; however, this short study shows that the question also needs to be refined in order to guide the technical work in a standards committee. Leppänen [8] has suggested utilizing the intersection of two perspectives – information systems (IS) and information system design (ISD) – to construct questions guided by the questions *why*, *what* and *what does it mean*. This intersection results in nine kinds of questions not found in the data of the case studies. But the evidence at hand shows that this line of questioning or analysis is not typical within the standards community, at least not as part of defined procedures of work.

## 5. Conclusions

This paper suggests an approach that might deliver an improved governance process of ICT standards development within the domain of Learning, Education and Training. Knowledge about the different processes that are involved in standardization activities may be created applying simple ‘primitive’ questions: *who*, *what*, *when*, *where*, *how*, and *why*. Such an approach aligns well with the Zachman Framework. Importantly, through considered application of *why*-questioning ITLET standardization activities could develop clearer rationale and explanations as part of the documented process of standards development, enabling more effective scrutiny and understanding by stakeholders. Analysis of existing documentation reveals that the depth of explanation is often under-developed, typically bypassing questions that address purpose, relevance and Information Systems Design. Through considered and consistent application of *why*-questioning it is likely that answers to questions of relevance will be more readily answered.

## 6. References

- [1] Cooper, A.R. (2010), Key Challenges in the Design of Learning Technology Standards: Observations and Proposals, *International Journal of IT Standards and Standardization Research* , vol. 8, no. 2, pp 20-29.
- [2] Zachman, J. A. (1987). A Framework for Information Systems Architecture, *IBM Systems Journal*, 26 (3), 276-293.
- [3] Jovanovic, V., Mrdalj, S., & Gardiner, A. (2006). A Zachman Cube. *Issues in Information Systems*, VII(2), 1-6.
- [4] Mason, J. (2008). A model for sense-making: exploring why in the context of learning and knowing. Proceedings of the 16th International Conference on Computers in Education, (pp. 545-549), Taipei, Taiwan: Asia-Pacific Society for Computers in Education. Available online <http://www.apsce.net/ICCE2008/papers/ICCE2008-paper286.pdf>
- [5] Hoel, T. and Hollins, P.A. (2008) Learning technology standards adoption – how to improve process and product legitimacy, ICALT 2008
- [6] Cargill, C. F. (1989). *Information technology standardization, Theory, Preprocess, and Organizations*, Digital Press.
- [7] Egyedi, T. (1996). *Shaping Standardization: A study of standards processes and standards policies in the field of telematic services*.
- [8] Leppänen, M. (2005). *An Ontological Framework and Methodical Skeleton for Method Engineering* (pp. 1-704). University of Jyväskylä.
- [9] Hoel, T. & Pawlowski, J.M. (2011) Key Knowledge Sharing Points: Exploring a new concept for studying Crossroads in Global Innovation Projects, ECKM 2011
- [10] Evered, R. (2005). A Typology of Explicative Models. In C.C. Lundberg & C.A. Young (Eds.) *Foundations for Inquiry: Choices and Tradeoffs in the Organizational Sciences*, Stanford, CA: Stanford Business Books.
- [11] ADL (2000). *Sharable Content Object Reference Model (SCORM), Version 1.0*. Advanced Distributed Learning. Available online <http://www.adlnet.org>