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Original citation:
Jakobs , Kai, 1957-, Williams , Robin and Procter , Robert N. (1998) Standardisation and innovation. In: 9th International Conference of the Information Resources Management Association, Boston, USA, 17-20 May 1998. Published in: Effective utilization and management of emerging information technologies : 1998 Information Resources Management Association, International Conference, Boston, MA, USA, May 17-20, 1998 pp. 1-3.

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Standardisation and Innovation

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The paper discusses the relations that exist between standards on the one hand, and innovation and implementation on the other. We will argue that these activities must not be considered separately, especially since standards-based components are going to play an increasingly important role in implementation processes.

In those cases where a suitable combination of standardised components meets the needs of a particular environment standards establish the sole framework within which an implementation takes place. This is most likely to happen in case of 'infrastructural' artefacts or systems, with only a small likelihood of, and indeed need for, innovations. Alternatively, especially if 'business relevant' systems are concerned, standards must be considered as important contributors to a system implementation, and to potential innovations. This implies the need to look at the ways how standards are formed and established. We would suggest that the site of the user's implementation as the current major locus where innovations materialise will to some extent be complemented by activities of the standards committees, where the underlying groundwork upon which innovations will draw has to be done. In the case of electronic mail systems, for instance, much of the underlying transport system comprises exclusively of standardised components. Regarding the more application-oriented parts of the overall system, i.e. the e-mail service itself, we note that implementation-specific particularities become more important; it is primarily at this level where the integration into the existing IT environment takes place, and where innovations materialise.

Users have a considerable influence on innovations; a user may have commissioned a technological system the development of which requires innovations, or an innovation emerges on his premises as part of an implementation project, or he develops a genuine innovation in an attempt to overcome identified deficiencies of the available technology. Yet, it is frequently overlooked that users (could) have a similarly strong hold over the industry simply because of their purchasing power (although they are hardly aware of it). It follows that they could establish themselves in a position to dominate

innovation and standards setting processes alike. As it currently stands, however, users' different needs prevent them from playing the important role they could play in standards setting.

Not only will technological specifications be done in the committees, but other factors that may shape technology will be channelled there as well. As committee members (includ ing those from user companies) tend to see themselves as company representatives (as opposed to representatives of the user community), they contribute specific requirements that originated form their respective work environments. The different visions of how a technology should be used, and the ideas how this can be achieved are both formed by these local environments. They will exert a significant impact on the work of the committees, thus preceding, and possibly complementing the local implementation context as a major source of influence. This holds especially in the case of anticipatory standards, which specify new services from scratch, and thus offer the opportunity to incorporate the particular characteristics of the originating committee to some degree. In a more extreme case, work within the committees may even anticipate innovations that would otherwise result from a local implementation. This may, for instance, happen if a strong user representative succeeds in promoting the particularities of his local environment as the basis for a standard. Yet, reactive standards will likewise transpose the environment from which they emerged; this will typically be the corporate environment of the inventor who specified the system upon which the standard will be based. Thus, his visions will implicitly be embodied in the standard specification. That is, we can observe here that the single local environments already have a major - although implicit - impact on the standards setting process in that they heavily influence the user requirements that are actually fed into the process.

Both standardisation and innovations are major platforms for cooperation between vendors and users. Without this cooperation the outcome of the processes would most likely be far from satisfactory, due to the complementing roles users and vendors play, which are equivalent in both processes: it is the vendors' task to provide for the technical knowledge and expertise. Users, in turn, contribute their specific knowledge about their requirements and environments, respectively. These complementing roles imply that communication between the two parties is crucial in both processes. The 'technology-centric' view of the vendors needs to be aligned with the organisational and technical requirements of

the users, a process that has to happen during implementation and standardisation, albeit with somewhat different foci.

We can now identify two distinct activities which have a major impact on innovations, namely the work done within the standards committees and the actual implementation itself. As we have observed above, these activities are not unrelated; even local implementations of individual, customised systems are likely to include standards-based components. Thus, standardisation will always influence innovations, either (see also Figure 1):

Figure 1: Standardisation's Influence on Innovation and Implementation
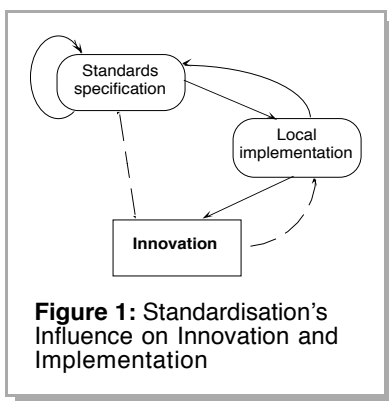
- directly, e.g. if an implementation is done via integration and configuration of standards-based components, or
- indirectly, in case of a customised solution comprising some standard elements being implemented, or
- as the actual locus of innovations.

In fact, given the large number of standardised components available, the odds are that every innovation in the IT sector will be significantly influenced by standardisation.