

**UKCRC response to the Cabinet Office Consultation
on the definition and mandation of open
standards for software interoperability, data
and document formats in government IT**

The UK Computing Research Committee (UKCRC), an Expert Panel of the British Computer Society, the Institution of Engineering and Technology and the Council of Professors and Heads of Computing, was formed in November 2000 as a policy committee for computing research in the UK. Its members are leading computing researchers from UK academia and industry. Our evidence reflects the experience of researchers who each have an established international reputation in computing.

1. Criteria for open standards

1. How does this definition of open standard compare to your view of what makes a standard 'open'?

As the report suggests, there are many senses in which a standard may be considered "open" (most of the discussion in the report relates to "openness" in the sense that the interfaces to software/documents/data are described clearly in a way that expresses a consensus on what those interfaces should be). There are also, however, at least two different notions of "standard". One is a standard that is produced after considerable use and is motivated by the need to harmonise practice - for example, specific programming languages are often developed in different dialects by different vendors and programming language standards identify a core language standard that allows a greater degree of portability of programs between dialects. A second form of "standard" is developed ahead of extensive use, with the aim of opening new areas of application - for example, in W3C recommendations for Web-related language standards that are designed to allow interoperability between systems not yet built.

We strongly support the sentence in the Government's definition that says that open standards are those that "are published, thoroughly documented and publicly available at zero or low cost". At present, many of the most important standards do not meet this criterion; for example, the international standard for functional safety in electronic systems that contain software (IEC 61508) costs several hundred pounds and cannot be quoted in academic papers, textbooks or lecture notes, which seriously inhibits both peer review and the education of software engineers who may end up working on safety-related systems. Another example is the software quality standard, ISO 9000-3, which is 64 pages long and costs £190 from BSI (half price to BSI members), again putting it out of reach of students and inhibiting its use by many SMEs. Software quality and the safety and security of software-based systems are extremely important to society at large and it is unacceptable that achieving best practice in software development is inhibited by the commercial interests of the publishers.

2. *What will the Government be inhibited from doing if this definition of open standards is adopted for software interoperability, data and document formats across central government?*

The Government would be unable to engage with systems operating standards that rely on enforced patents but this is, arguably, a beneficial limitation since it will force a shift to royalty-free and non-discriminating standards. The Government policy is worded so as to allow more restrictive standards to be used where this is necessary for “business reasons” (we assume this refers to the business of government) so this, if wisely applied, allows dilution of openness where strictly necessary.

3. *For businesses attempting to break into the government IT market, would this policy make things easier or more difficult - does it help to level the playing field?*

Assuming a well chosen approach to what is standardized and how openness in standards is rolled out, this should make entry to the government IT market easier. This is not just an issue of leveling the playing field for those already in the government IT market but also (in some areas) an opportunity to open the market beyond the current players by making it easier for businesses not already involved to assess the constraints under which they may enter such markets.

6. *Would this policy support innovation, competition and choice in delivery of government services?*

It could (over time) open a wider market for services with greater competition and choice of delivery. This depends not only on having more open standards, however, but also on having systems architectures that have standardized interfaces and for which interfaces are clearly defined, plus a procurement culture that allows for a greater variety of service providers.

9. *Does selecting open standards which are compatible with a free or open source software licence exclude certain suppliers or products?*

This depends on the extent of open standardization. A strong view of open standards would stipulate that software that is not fully compliant with open standards would be excluded. There are, however, weaker positions in which (say) documents or data are required to comply to open standards but where software systems may comply (sometimes partially) with several standards, so as to compete in different markets. The weaker position may be inevitable since standardization is not a once and for all activity; standards and software systems evolve.

12. *In terms of standards for software interoperability, data and document formats, is there a need for the Government to engage with or provide funding for specific committees/bodies?*

As the consultation document recognizes, standards are neither simple in themselves nor simple to maintain. It is necessary for those responsible for shaping Government IT procurement and system maintenance to keep in touch with relevant standards as these (and the systems to which they apply) evolve. For transparency, this should involve individuals or groups without a vested interest in government procurement.

2. Open standards mandation

1. *What criteria should the Government consider when deciding whether it is appropriate to mandate particular standards?*

One criterion is the nature of the standard itself. In open standards it is important to satisfy a number of criteria that make a standard more “open”, such as (borrowing from the W3C open standard recommendations) transparency of the standards creation process; relevance of the standard to market needs, openness of participation across the social and industrial spectrum; impartiality of the standard’s coordinating organization; free availability of the standards; and well defined processes for maintaining the standard.

A second criterion is the nature of the system to which the standards are applied. If it is a new system, can be designed in such a way that standardization improves its integrity, ease of operation and/or maintenance? If it is a legacy system is there an advantage in refactoring the system to take advantage of more open standards? If it is document/data based then can these documents/data be translated/transformed so as to fit to an open model?

4. *Could mandation of competing open standards for the same function deliver interoperable software and information at reduced cost?*

If there are competing open standards for the same function, they are very unlikely to be compatible and hence software which complies with one of the standards is very unlikely to be able to interoperate with software complying to one of the other competing standards.

9. *How should the Government strike a balance between nurturing innovation and conforming to standards?*

Innovation and open standards are not at opposite ends of a spectrum. Obsolete standards and over-prescriptive or poorly targeted standardization can indeed stifle innovation but the aim of open standards should be to encourage innovation by enabling as many developers as possible to compete in the provision of software and data.