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Layout Design: François Louis Nicolet

Composition: Jorge Llácer-Gil de Ramales

Editorial correspondence: [Llorenç.Pagés-Casas@ati.es](mailto:Llorenç.Pagés-Casas@ati.es)

Advertising correspondence: [novatica@ati.es](mailto:novatica@ati.es)

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# A Brief History of Open Standards in Denmark

John Götze

*This article discusses current and recent developments in Denmark, where open standards have become a central policy issue. Although Denmark is known for leading the way in true, large-scale openization, a full-blown effort towards these ends is highly unlikely.*

**Keywords:** Denmark, E-government, Interoperability, OpenDocument, Openization, Open Standards.

## 1 Introduction

In the e-government field, Denmark is almost always seen as a leader when compared to other nations. We're considered the e-readiest society with some of the most e-literate citizens. We have PKI and digital signatures, we have e-procurement and e-invoicing, we have digital registries and databases *en masse*, and so on.

Denmark is also often regarded as the ultimate "Microsoft country". Denmark not only hosts the largest Microsoft development division in Europe, but Microsoft has also a de-facto monopoly in Danish government and society at large.

Open standards have been on the political agenda in Denmark for several years. This was partly prompted by the situation with Microsoft and other monopolies, but also as a widely supported openization process.

I use the concept of *openization* as an overall term for a deliberate transformation strategy, where open standardization plays a central role and where the ultimate goal is to create open ICT ecosystems that are healthy and sustainable, innovative and creative, inclusive and empowering.

The concept openization became a shared concept for the Open ePolicy Group when we made the *Roadmap for Open ICT Ecosystems*<sup>1</sup>. In the *Roadmap*, we describe the openization process as a three-fold strategy, where the three arms are open standards, open source and service-oriented architecture (SOA).

## 2 The Danish Case

Two years ago, the Danish government began requiring all companies selling goods or services to the state to submit their invoices electronically. This e-invoicing project picked up an EU award for innovation at a ministerial conference, not for anything technically clever but for the resolution with which it was made compulsory. EU-ministers were impressed by the direct link with efficiency savings - something that has so far eluded most European e-projects, as they reportedly admitted.

As a matter of fact, there were indeed also technically clever parts to the Danish e-invoicing project. The Danish government adopted the international UBL (Universal Business Language) standard from OASIS and by doing so, not only helped UBL reach critical acceptance, but also made the Danish solution ready for wider international adoption. Today several other countries, especially in the EU, are adopting UBL too.

In the process, Denmark learned that compulsion will not be universally popular, but also that there are huge efficiency gains and potential service improvements by making standards compulsory. As a British reporter said<sup>2</sup>, "*The Viking streak always wins: it's more efficient*".

## 3 Common and Open

It is of course an important point to stress that UBL is an open standard. Unfortunately, one might say, the importance of this has not been completely clear in the Danish process, where the government's main interest was that it is a compulsory common standard.

But it became obvious to policy makers that common is not enough, and that standards should be both common and open. This however led to many and too-often confusing debates about definitions: What *is* an open standard?

It didn't help that Microsoft chose Denmark for the initial phase of opening up their document formats - the XML Schemas for WordML and such were published in the Danish government's XML repository. Did that make them an open standard?

## 4 The Interoperability Agenda

The Danish debates about open standards were coupled to a trend in Europe, where interoperability became a hot IT-policy area in the years after Y2K. The UK created their e-GIF (e-Government Interoperability Framework) and other countries were working with similar programmes.

### Author

**John Götze** has worked with government technology, enterprise architecture and open standards for more than 15 years. Today he is an independent consultant and writer, a non-tenured associate professor at Copenhagen Business School and a staff member of OASIS, the Organization for the Advancement of Structured Information Standards. He is also a member of the Open ePolicy Group. <john@gotzspace.dk>

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<sup>1</sup> <http://cyber.law.harvard.edu/epolicy/>

<sup>2</sup> <http://technology.guardian.co.uk/online/insideit/story/0,1694624,00.html>

At the pan-European level, the European Commission's Interchange of Data Between Administrations (IDA) programme in 2002 took the initiative to establish a pan-European Interoperability Framework<sup>3</sup>. This was defined as a policy document providing recommendations and defining generic standards with regard to organizational, semantic and technical aspects of interoperability, thus offering a comprehensive set of principles for European cooperation in e-Government.

In the eEurope Action Plan 2005, adopted by the European heads of state at the Seville summit in June 2002, it stated that the European Interoperability Framework (EIF) would be "*based on open standards and encourage the use of open source software*".

I had the pleasure of being involved in creating the European Interoperability Framework, serving as Denmark's representative in the EU working group in IDA.

After a long and open process, the *European Interoperability Framework for Pan-European E-Government Services* was approved by the Telematics Between Administrations Committee (TAC) Steering Committee in November 2004. There they released a Final Version 1.0.

EIF was instrumental in clarifying the meaning of interoperability, by explaining that there are three forms of interoperability, namely technical, semantic and organizational interoperability.

Technical interoperability covers the technical issues of linking computer systems and services. It includes key aspects such as open interfaces, interconnection services, data integration and middleware, data presentation and exchange, accessibility and security services. Semantic interoperability is concerned with ensuring that the precise meaning of exchanged information is understandable by any other application which was not initially developed for this purpose. Also it enables systems to combine received information with other information resources and to process it in a meaningful manner. Organizational interoperability is concerned with defining business goals, modelling business processes and bringing about the collaboration of administrations that wish to exchange information and may have different internal structures and processes. It also aims at addressing the requirements of the user community by making services available, easily identifiable, accessible and user-oriented.

The rationale for the support of open source software is articulated in the EIF document as: "*Open Source Software (OSS) tends to use and help define open standards and publicly available specifications. OSS products are, by their nature, publicly available specifications and the availability of their source code promotes open, democratic debate around the specifications, making them both more robust and interoperable. As such, OSS corresponds to the objectives of this Framework and should be assessed and considered favourably alongside proprietary alternatives.*"

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<sup>3</sup> <http://ec.europa.eu/idabc/en/document/2319/5644>

<sup>4</sup> <http://standarder.oio.dk>

While the EIF document does not deny the legitimate role of proprietary software alternatives in the IDABC Programme, it does present a strong statement about RAND (royalty-free standards) that are viewed to be acceptably defined as "open" standards.

The principle of "open standards" is formulated in EIF (section 1.3, "*Underlying principles*") derived from the eEurope Action Plan 2005 as well as from Decisions of the European Parliament, where the Council and the Commission "*have adopted and promote a set of general principles which should be respected for any eGovernment services set up at a pan-European level*" including "Use of Open Standards".

"To attain interoperability in the context of pan-European eGovernment services, guidance needs to focus on open standards. The following are the minimal characteristics that a specification and its attendant documents must have in order to be considered an open standard:

- *The standard is adopted and will be maintained by a not-for-profit organisation and its ongoing development occurs on the basis of an open decision-making procedure available to all interested parties (consensus or majority decision etc.).*
- *The standard has been published and the standard specification document is available either freely or at a nominal charge. It must be permissible to all to copy, distribute and use it for no fee or at a nominal fee.*
- *The intellectual property - i.e. patents possibly present - of (parts of) the standard is made irrevocably available on a royalty-free basis.*
- *There are no constraints on the re-use of the standard."*

I see the definition offered by EIF as a pragmatic, yet principled, statement. Although the definition became a central issue in the media after the launch of EIF, it was actually not the purpose of EIF to define "open standard". The main idea of EIF was to get member states to launch national interoperability frameworks and to offer guidance for how these could work together and be comparable.

I was responsible for implementing the Danish Interoperability Framework, the Reference Profile (now named "OIO Catalogue") which was launched in parallel to the EIF.

The OIO Catalogue<sup>4</sup> has since had a central position in the Danish e-government policy and has been an inspiration for other countries, for example Norway, in their work with interoperability.

### 5 Open Standards Politics

In Denmark the "open standards"-issue became a "real" political issue in 2004, when MP Morten Helveg Petersen, from a small opposition party, raised the issue in Parliament by make a proposal about the use of open standards in government. This sparked a long debate.

The result: on 2<sup>nd</sup> June 2006 the Danish Parliament (*Folketinget*) unanimously passed a Parliamentary Resolution on Open Standards (B103) saying (in my translation):

Parliament imposes on the government a duty to ensure that the public sector's use of IT, including the use of software, is based on open standards.

And it goes on to specify that: *The Government should adopt and maintain a set of open standards by 1<sup>st</sup> January 2008, or as soon as technically possible, which can serve as an inspiration for the rest of the public sector. Open standards should be part of public IT and software procurement with the object of promoting competition.*

In the comments, this is suggested to be a "comply or explain"-model. But overall, this is the rule: *The Government should ensure that all digital information and data that the public sector exchanges with citizens, companies and institutions, are available in open standards-based formats.*

It should be noted however, that the Government opposed the resolution until the last minute, but swung around – some say because they realised they were outvoted, others argue that it was part of a wider tactical ploy. Regardless, the resolution was passed, setting a radical agenda for open standards in the Danish government.

The responsible minister Helge Sander (the Minister of Science, Technology and Innovation) is yet to present an implementation plan.

### 6 Comply or Explain

The ministry has on occasions acknowledged that the "comply or explain"-principle will be used, but has not yet publicly specified how this will work. Today there is no obvious place for an agency to go to and "explain" how things are, so some institutional arrangements will be needed if the principle is to be implemented.

It could also be seen that this principle should be applied to contracts, CFPs (Call for Proposals) and procurements. But there are challenges here as well: what should the contractor comply with? The point should, of course, be that compliance must be achieved where it matters. In many situations, this means compliance with certain specific standards. If used at such level, many vendors will have a lot of explaining to do!

Looking at the Danish e-invoicing case, compliance was the only option. In order to make that a realistic and operational solution, government chose to fund a "middle man", a conversion service through so-called "read-in bureaus" (scanning agencies), so that compliance was ensured through a middle-man solution.

The Danish example shows that it is possible to enforce the use of standards on a large scale. By and large, the vendor market has also reacted positively and sees compliance in their products as a necessity.

### 7 Governments Leading the Way?

Much good can be said about having governments lead the way in standards adoption, but we also know there are inherent dangers. Governments are not always the fastest movers and once things are settled, it can be almost impossible to make changes and adapt to new circumstances. History shows this is a real challenge: for example, the now ancient mail protocol X.400 was sustained in many governments long after its life ended in industry.

The Danish public administration has a long history of standards adoption and creation. During the first big wave of digitization in the 1970s and 1980s, the Administrative Department rolled out document management systems, data registries and weren't shy of mandating solutions and standards. That changed during the second wave in the 1990s, where market forces took over more and more.

### 8 The ODF Situation

Proponents of ODF have established the ODF Alliance<sup>5</sup>, whose mission is to get governments to adopt ODF. Although their mission has my full sympathy, I do want to stress that it is critically important that we get wide market adoption of standards such as ODF. If ODF is "only" a government standard it will fail. It needs to be adopted in society at large.

During the B103-process, the Minister of Science announced that his ministry and a few other ministries would initiate a pilot project with ODF. The project should ensure that published documents on their websites would become available in ODF in addition to other formats (as they often published only Word-documents). Soon after, the ministry launched a rebuilt website with very few documents and appears to have learned not to publish Word-documents.

### 9 Unify or Divide?

Although it would make a lot of sense to stress the idea that standards could be unifiers, something we agree upon and use universally, the reality is much too often the contrary. The major ramifications of standardization are shown in the current development of and around open standards for office document formats: it is used to both unify *and* divide<sup>6</sup> people, markets, geopolitical regions and technologies.

Unify? Yes, Sun Microsystems, IBM and many others have joined up, unified, around the OpenDocument Format (ODF), which is an official ISO-standard and actively maintained by OASIS.

Divide? Yes, because there is more than one standard. By now, as we know, Microsoft's new document format for their Office packages, Office Open XML, is an official standard published by Ecma, the European Computer Manufacturer's Association (which turned into a standardization consortium).

Also the Chinese have their own UOF-standard, but work is going on aligning ODF and UOF, which are rather similar.

CompTIA's president and CEO John Venator commented

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<sup>5</sup> <http://odfalliance.org/>

<sup>6</sup> "Unifier or Divider" is the theme of a forthcoming issue of Standards Edge, see [http://www.thebolingroup.com/standards\\_series.html](http://www.thebolingroup.com/standards_series.html)

in a letter<sup>7</sup> to Ecma: "*Competition among multiple open document standards will enhance innovation in document formats and increase flexibility and interoperability, all to the benefit of software consumers.*"

This view is clearly an argument by vendor interests (of which CompTIA is clearly a representative).

An alternative view is that competition is good, but that it is only healthy when occurring between products, rarely between standards. In contrast, there is often a good business case in selecting if not mandating certain standards.

### 10 Show me the Costs!

A report about the costs related to switching to open standards for document formats in the Danish government was made by Rambøll Management, a Danish consultancy, on behalf of The Danish Open Source Business Association (OSL).

The report establishes three scenarios for the development:

*Scenario 1: Microsoft Office and ECMA Office Open XML - would cost 380 million kroner over 5 years with migration to MS Office 2007; 105 million kroner if using current versions with plug-in.*

*Scenario 2: OpenOffice.org and ODF - would cost 255 million kroner over 5 years, covering all migrations costs plus already existing MS licence costs (until phased out).*

*Scenario 3: Microsoft Office (with plug-in) and ODF - would have only marginally higher costs than scenario 1.*

The Open Source Business Association estimates that the whole of government (including local government) could save 550 million kroner by migrating to OpenOffice.org and ODF.

### 11 Open Schmopen

In December 2006, IDC Nordic presented the results of a survey about document formats they had carried out among Nordic companies and governments. Per Andersen, Managing Director for IDC Nordic, said: "*We believe that multiple open document standards are going to exist in the market – just as the case would be with proprietary standards – and each will mirror certain needs in the market.*"

The \$4200 report by IDC was made freely available on Microsoft's OpenXMLDeveloper.org site<sup>8</sup>. Presumably, Microsoft wants the world to know the findings, which IDC summarises as: "*Companies generally do not consider ODF to be more open than Open XML or vice versa. Generally, companies are rating Open XML of higher importance to them when purchasing software than ODF.*"

IDC however also notes that ODF has its strongest adoption and ratings among public organisations and they believe this reflects the current positioning of ODF as ensuring the "free communication between public sector and citizens".

The conclusion that IDC makes is that: "*We do not believe there are, per se, any problems with the co-existence of two document standards.*"

This development accentuates the importance of being clear about criteria for deciding what *is* and what *is not* an open standard.

There are certain key "process" criteria:

- process open to anyone to join in development and evolution of the standard

- standard not effectively controlled by any one entity with a commercial interest

- due process and transparency in decision making

The Open ePolicy Group's *Roadmap* considers a standard to be open when it complies with all these elements:

- cannot be controlled by any single person or entity with any vested interests;

- evolved and managed in a transparent process open to all interested parties;

- platform independent, vendor neutral and usable for multiple implementations;

- openly published (including availability of specifications and supporting material);

- available royalty free or at minimal cost, with other restrictions (such as field of use and defensive suspension) offered on reasonable and non-discriminatory terms; and

- approved through due process by rough consensus among participants.

At a minimum, open standards must allow all possible competitors to operate on a basis of equal access to implementing the standard. They should not drive others to follow any specific proprietary path or effectively preclude any software development model.

While ODF passes as a truly open standard, Ecma Office Open XML does not. It is effectively and practically controlled by Microsoft, which has huge commercial interests in it.

### 12 My Conclusion

Although Denmark is known for leading the way in true, large-scale openization, a full-blown effort towards these ends is highly unlikely.

The likely development will be a pragmatic government policy which is more or less aligned with Microsoft's own on-going attempts at openizing themselves.

On the other hand, there is a good and solid business case in ODF and the Ministry of Finance is out looking for good business cases, so anything can happen.

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<sup>7</sup> <http://www.intelligententerprise.com/showArticle.jhtml?articleID=196602143>

<sup>8</sup> [http://openxmldeveloper.org/archive/2006/11/27/IDC\\_Open\\_Document\\_Standards.aspx](http://openxmldeveloper.org/archive/2006/11/27/IDC_Open_Document_Standards.aspx)