



Summary

Software is politically relevant

Democratic access to technology and competition in the software market is a political priority across party boundaries. According to the Norwegian Board of Technology expert group on software policy, these demands are not met. It is a public responsibility to correct market failure and secure access to public documents.

Technological choices must be made both locally and nationally

The Norwegian Parliament and the ministries, as well as municipalities, schools, and universities make technological choices all the time. The fact that the Norwegian Ministry of Labour and Government Administration has given local authorities greater responsibility for IT-policy increases the need for standardisation and cooperation.

Open information exchange requires open standards

The exchange of digital information on the net should be based on formats that are accessible to everyone. To ensure competition, these formats should be independent of suppliers and based on open standards.

Measures against monopoly markets must be considered

Large and powerful suppliers dominate the Norwegian software market. For example, Microsoft's operating system (Windows), web browser (Explorer) and file format (Word) have a de facto monopoly. Stimulating other suppliers would promote real competition.

The public sector must lead the way

Norwegian Internet users should have freedom of choice and be able to influence their digital home environment. The public sector must therefore ensure that all public documents are accessible in open formats and gain experience with software based on open source code.

Current policy status

Access to public services is undergoing fundamental change through the increasing digitalisation of the public sector. The IT policy of the Norwegian government consists of shaping the infrastructure for growth, ensuring access and security, as well as making the public and private sector ready for change. Public policy should ensure real competition.

Minister of Labour and Government Administration Victor D. Norman chose not to renew the procurement and service agreement (*Select agreement*) between the public sector and eleven big suppliers. Although this opened up some local initiative, it did not necessarily lead to more competition.

However, few municipalities have started using open source software or have a policy to promote

open standards, according to a recent government report prepared by Teleplan on behalf of the ministries of Trade and Industry as well as of Labour and Government Administration. Important barriers seem to be lack of information and competence; lack of integration with existing applications; transaction and training costs.

Since the market is not working effectively, user empowerment and local development must be encouraged. This was the conclusion at the public hearing of actors in research, government and the private sector, arranged by The Norwegian Board of Technology on September 3rd 2003. The question of measures to promote open standards and protocols also came up during the question session of the Norwegian Parliament on October 15th 2003.

Democratic concerns

Democracy is about more than voting during elections and ensuring the freedom of speech. There are crucial issues such as access to information and everyday participation in political processes. Wide participation in an information society demands active access – you must be able to communicate, process, and adapt both information and technology. Today, access to the Internet is a prerequisite to participation. But to *be* on the net is not enough. One must also be able to *do* something there, and be free to adapt technology to one's own needs.

Public IT systems and digital proposals do not always embrace the challenge of open standards, despite many public reports on the ideal system of participation:

- § Management systems, reporting and data capture interfaces (for example

eSak) tie the public sector closely to Windows. The online travel reimbursement form currently only works on the Windows operating system.

- § The web TV of the public Norwegian Broadcasting Corporation NRK has Windows Media Player as the preferred choice, and TV2 has this as the only alternative.
- § Documents in Word-format are especially common in Norwegian municipalities, both in internal and external communication.

This means that the typical Norwegian user – whether s/he is a citizen, pupil, CEO, or senior – for all practical purposes must be a customer of Microsoft.

Three important concepts

Open Source

The source code is a set of instructions telling the software what to do. Source code can be read and changed only by a programmer. Open Source means the source code is open for viewing and change by the users of the software.

Software based on open source can usually be used free of charge. Increasingly, there are variants available for customers who want to pay for customer support and additional functionality. The following are most common: the Linux operating system, the web server Apache, and the mail server Sendmail – other examples are office software like Mozilla, Evolution, and Open Office.

Open standards and formats

What distinguishes software that follows open standards is that it will read and write saving formats that are openly accessible to everyone. The source code will not necessarily be accessible, but if the supplier disappears, other software will still be able to read the documents, ensuring that the information is not lost.

From mobile telephony we know the GSM-standard. GSM has enabled portability between different countries and operators. As a result of the fact that producers and governments agreed

on a standard, consumers can choose between many cell phones and phone companies.

Standards in the software area first and foremost describe file formats (for example, html) and communication protocols (for example, http). In the same way as the GSM-example, the use of open standards would give more freedom of choice. Access to public information would then be easier regardless of which operating system one is using (Mac OS, Linux, Windows, Symbian, or others).

Open standards are developed and maintained by organisations such as the Internet Engineering Task Force (IETF) and the World Wide Web Consortium (W3C) and not by one particular software supplier. An exception is the PDF-format from Adobe. The PDF-specification is available to all, but Adobe maintains control of any future software development and standards. This new landscape presents challenges for suppliers who formerly had their market control based on owning the standards.

Potential downsides of open standards are that they might have limited functionality and take longer to develop, since they demand cooperation between a host of actors and suppliers.

Software licenses

The purchase, sale and rights regarding software besides intellectual property rights (for example, patents) are often regulated by licenses between user and patent holder. The licenses can be both commercial and non-commercial (for example, open source licenses). They distribute rights, protect both parties and typically regard the right to access, resell, copy, and change the software.

Inexpensive license fees, or no license fee, do not mean that the software is free. Often users have to pay for installation, technical support, instruction, adaptation and maintenance the whole time they are using the software (the so-called total cost-of-ownership). Therefore, such costs are basic terms of any discussion about what software is cheapest or best suited, for example, to the public sector.

Open software or open standards in the public sector?

The use of open source software is controversial for many reasons. Profit is spread to several actors and the selling of services to use the product becomes more important. Larger industrial actors often make the claim that the public sector should not interfere in the software market. Some say open source weakens intellectual property rights.

Even though the program itself may be free, there are large variations in quality, user support, and price in open source software. If anything goes wrong, you have less consumer protection. Last, but not least, industrial actors point to the fact that the public sector does not always need access to source code.

The use of open standards and formats should be less controversial. The principles of open standards for the exchange and archiving of public documents is, in fact, already part of Norwegian laws and regulations, even though it is not followed through in practice.

When we exchange digital information on the net, we should use formats that are accessible to everyone. To ensure competition the formats should be independent of suppliers and based on open standards.

Those who control a format have a large, *de facto* market power – they frame the digital rules of communication. To ensure competition in the software market, formats must be open and independent of suppliers.

Microsoft

Microsoft is the most visible software actor in Norwegian everyday life. Their operating system (Windows for PC), web browser (Internet Explorer) and office software (Office) have, with some exceptions (for example the market for web servers), a *de facto* monopoly. This may create lock-in, forcing users into one particular technology, supplier and usage. Microsoft Word is prevalent both in Norwegian municipalities, companies and schools.

Communication with the public sector as well as private sector services via the Internet should to the largest possible degree be independent of a user's choice of software or whether s/he has broadband access. Public information, regarding the choice of hospitals, schools, etc. – should for example not depend on whether one has the latest version of a particular web browser or operating system.

The political challenge

In a society where technology is an integral part of everyday life, uneven access is a democratic challenge. The Parliament, other public sectors, and especially municipalities should address uneven access due to price, competence, competition, or the issue that neither the public sector nor the software suppliers make the effort to always use and promote open standards. The public sector also should gain experience with the use of open source software and contribute to making this part of the industry compete on equal terms.

Reports that promote the use of open standards have been issued in Norway, Denmark, Great Britain, Sweden and the EU. The government report on *Open software in Norway (2003)* points out that the public sector can choose to inform, to give better conditions for, or to actively promote such development.

In addition, several reports suggest an active promotion of open source software. The Danish Board of Technology (2002) presents economic impact. According to the Swedish Statskontoret (2002), open source will increase competition; ensure interoperability; and lower costs. Great Britain is now running open source trials in nine public sector units, coordinated by the government's eEnvoy.

The expert group of the Norwegian Board of Technology recommends:

Moving to open standards and formats

All public documents should be accessible in open formats (for example HTML, XML, and PDF). Public broadcasters and other Internet media should support open multimedia formats (for example MPEG and MP3).

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Preference mandates with public procurement

The public sector must be a demanding customer and ask for software supporting open standards, in addition to assessing open source software in public procurement. Software source code paid by and developed for the public sector should also belong to the public sector.

Linux in schools and the educational sector

More Linux in schools can contribute to making Norwegian schoolchildren more flexible, innovative, and competent computer users. Universities and colleges should also be more independent of particular suppliers.

Pilots in several public bodies

Norway should follow Great Britain in open source trials, in order to gain experience.

The expert group in software policy of the Norwegian Board of Technology consists of Ole Hanseth (the University of Oslo and London School of Economics), Håkon Wium Lie (Opera Software), Dag Wiese Schartum (University of Oslo), Mikael Snaprud (Agder University College), Lars Sjørgard (Norwegian School of Economics and Business Administration), Tanja Storsul (University of Oslo), and Grethe Helene Viksaas (Basefarm as). The Norwegian Board of Technology is represented by professors Einar J. Aas and Magne Espedal and Project manager, Trond Arne Undheim. A comprehensive report will be published in the spring of 2004.

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