

# Schoolnet Report DENMARK

## What is a Schoolnet?

The Sektornet is the complete network solution for the entire educational sector in Denmark. With focus on applications, it was originally focused on administrative applications – applications in education existed as an option. There was a change during the process of establishing the Sektornet: The usage of the net within education got a predominant position. The overall objective was maintained, but the way the net was established and not least the way it was applied differs from what was originally expected.

The main demands were:

The institutions should be connected to the Internet as well as to each other.

To ensure safe exchange of confidential data security was a crucial theme.

To enable access to relevant services on the network, schools with a network<sup>1</sup> connection were therefore offered a free access to a large number of services. The most important of these services were:

- SkoleKom
- Web-hotel
- FTP
- News
- Mail\*Hub
- DNS

The Sektornet connection and application of the schools were efficiently supported. There is access to the help function CERT, if it appears necessary.

The goal was integration of ICT in administration and education. The process towards this goal was described in three 'waves':

- Establishment of infrastructure
- Qualification
- Application

According to this, the establishment of the Sektornet as an infrastructure could be described as the first of these waves.

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<sup>1</sup> This was an offer to all institutions; not just the ones that chose a Sektornet connection

## **Schoolnets and policy**

ICT is playing a central role in the globalisation process. The government in Denmark will ensure that ICT is integrated into teaching, so that pupils, students and teachers learn how to use state-of-the-art communication technology, which is a vital prerequisite for getting ahead in an international world. Investments in ICT should help to secure a place for the Danish education system in the technological world elite.

The Danish government believes that ICT should have a special place in the education system. The technology should be integrated into subjects at every stage and utilised at every level where it is relevant. Increased use of ICT in the education system can contribute to increased professionalism and quality. Pupils must learn to exploit ICT in specialist contexts as early as the primary and lower secondary education level. Knowledge and mastery of ICT as a daily tool will give children and young people the best qualifications for getting ahead in working life and as a member of future society.

There is also an increasing trade in education via the Internet. Denmark is only thinly represented on this market. So this area is a large, unused and potentially lucrative sphere of activity for educational institutions. The developing opportunities are not just financial. Involvement in competition will automatically contribute to the development of the own skills of the institution.

### **For whom Schoolnets are designed for?**

The rolling out of the Sektornet was carried out as shown below:

- Universities and similar institutions
- 1995 (spring)            Teachers' colleges and institutes for social educators
- 1995 (autumn)        Vocational schools
- 1996 -1997            Upper secondary schools, higher preparatory courses,  
and adult education centres
- 1997 – 1999        Basic schools and others
- 2001 -                Basic schools and others
- 2002                 Adult vocational training centres, language schools

## **What do Schoolnets contain?**

As mentioned the Sektornet is an overall solution – part of the solution is a number of services for the schools and the users.

In addition, parallel with the rolling out of the Sektornet, many services have been developed to meet further demands of users.

### **SkoleKom**

Without comparison SkoleKom is the largest and most important service.

SkoleKom is a nationwide mail and conferencing system for teachers and students below university level in Denmark. The service is included in the Sektornet package, but is not limited to this. At present there are approximately 600.000 registered users.

### **The Toolbox**

The Toolbox is a fairly new service. The Toolbox is the place where information and administration of the school's Sektornet connection is gathered, including security, operations and surveillance.

### **Other services**

Other services are services that more or less border on the 'fringes of the Sektornet'. In this way they are all related to the Sektornet, but they are not, or only partly, financed by the Sektornet. It can also be described in another way, namely that the Sektornet has created the 'community', which is a prerequisite for the success of the services.

### **EMU**

The EMU (electronic meeting place for the educational world) is an ambitious portal project. The idea is to establish one access to the entire educational world. As the educational world comprises teachers and students of many different categories of education, the EMU is divided into universes. For instance there is a basic school universe and an upper secondary school universe. Across these universes there can be themes and events. An example of a cross-universal theme is 'web ethics'.

Via the EMU there is an access to services, which are available to the educational world, including the services of Sektornet.

At present the EMU is among the 25 most frequently visited web sites in Denmark.

### **person.emu.dk**

person.emu.dk is a server, offering teachers and students a free web site. The only requirement is that they have access to SkoleKom.

## **SkoDa**

SkoDa is the short form for the Database Service of Schools in Denmark. It is a basic collection of databases, which can be used in education by teachers and students. SkoDa is a subscription service. Presently approximately 2.400 schools are registered.

## **FIG**

The special-subject "Info guide" consists of quality-ensured links to web sites that can be useful in education.

## **Sektornet VPN**

As the Sektornet is directed specifically towards the educational world, it is only natural that Sektornet relates to the specific needs of this sector. In education as well as in administration there is a widespread culture of working at home. This results in a need for the establishment of a secure connection from the staff's home computer via an arbitrary ISP to the closed networks of the schools. To meet this demand a specific product was developed, Sektornet VPN. Presently approximately 380 schools have bought the product. There are approximately 3.400 paying users.

## **Who is involved?**

UNI-C, which is a government institution under the Danish Ministry of Education, runs the Sektornet and delivers services and the majority of the support.

The Sektornet unit at UNI-C has the responsibility for sales of connections to the net, as well as responsibility of co-ordinating delivery, development and support.

In the course of time the Sektornet became more integrated in the general organization of UNI-C, and sales have been distributed on four different sales groups. Each of them is responsible for an individual school segment. The responsibility for technical operation, including responsibility for the configuration of routers, is at UNI-C.

The rationalisation of the support primarily for upper secondary schools and basic schools began in the year 1997. Since this year centralization of the support regarding teachers' training colleges and vocational schools has taken place at UNI-C. The reason for the centralization lies in the use of large, joint administrative systems of these institutions.

## What research has been done about Schoolnets?

### **Sektornet, the Danish School Network, UNI-C 2003, By Kurt Bøge**

Information and Communication Technologies in the Education System, Action plan for 1998-2003, The Ministry of Education 1998, <http://eng.uvm.dk/publications/10InformationCom/1.htm>

### **Information and Communication Technologies in the Danish School System**

A State of Art Evaluation in 6 Areas of Government Action, The Danish Ministry of Education 1997, By Sigmund Lieberg, Nasjonalt læremiddelcenter in Norway and Jeff Morgan, National Council of Educational Technology in UK, <http://eng.uvm.dk/publications/14ict/>

### **Figures on the Danish Information Society 2005 - Danish Figures, Statistics**

Denmark 2005,

[http://www.dst.dk/HomeUK/Statistics/ofs/Publications/KFICT\\_DK.aspx](http://www.dst.dk/HomeUK/Statistics/ofs/Publications/KFICT_DK.aspx)

### **Achieving the Lisbon Goal: Country Report Denmark, Danish Technological**

Institute 2004, Hanne Shapiro

### **On-line publications in English from the Danish Ministry of Education,**

<http://eng.uvm.dk/publications/engonline.htm>

[www.uni-c.dk](http://www.uni-c.dk)

[www.sektor.net.dk](http://www.sektor.net.dk)

[www.uvm.dk](http://www.uvm.dk)

## **Schoolnets in Schools**

All types of educational institutions can be connected to the Sektornet. This means that the use of the network cannot be described in one go.

Universities only use the Sektornet within a limited extent and only for administrative purposes. For educational and research purposes the Research Network is used.

The teachers' training colleges use the Sektornet for both administrative and educational purposes.

The vocational schools originally used the Sektornet primarily for administrative purposes. The vocational schools use the same administrative systems. It is a requirement that schools can exchange data. This exchange can only take place via the Sektornet focused on the requirements of security.

In the past few years there has been an increase in the educational use of the Sektornet/Internet at vocational schools. The increase has been so marked that it has made an impact on the administrative traffic to such an extent that many vocational schools have chosen to establish independent connections for each of the two types of traffic.

In upper secondary and in basic schools traffic, that derives from education, raises to a very high extent. Some counties have established their own solutions for the administrative traffic, while others have utilized the offer of the Sektornet security. The same pattern can be seen in the basic school area, but it is only fair to note that the Sektornet connection methods have been well suited to the municipal needs. They have been selected to be the basis of the Sektornet also for administrative purposes. This is also the case with the county councils.

Finally – across the sectors – there is the traffic deriving from applications that must be said to be on fringes of - or totally outside - the purposes of the Sektornet. It is a matter of fact that Sektornet is used for exchange of programs, private downloading of films and music, chat and such like. Far the majority of this traffic varies from the application policy of the Sektornet. To enable the schools - whose responsibility is to ensure that the application policy is adhered to - to stop this kind of traffic, the Sektornet has developed a number of specified router filters for this purpose. It is not unusual for data, which should be transported through the router of a school, to fall by more than 50% when these types of filters are activated.

## Financial aspects of SchoolNets

All in all, the total of the state subsidies for the Sektornet is approx. DKK 480m. The figure clearly shows that the establishment phase of the Sektornet is completed, and that the state subsidies are decreasing rather quickly. 2003 is the first year in which user payment is expected to exceed the state subsidies.

Sektornet is financed as indicated below.

<b>Sektornet</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
<b>Sektornet Total</b>										
State subsidy (mill. DKK)	8.1	19.2	16.1	75.2	85.2	90.7	54.4	50.3	31,3	18.9
User financing (mill. DKK)	0.0	0.0	0.0	0.0	0.0	10.9	16.0	22.5	19.5	22.4
<b>355 ITMF Schools</b>										
State subsidy (mill. DKK)								17.2	11.1	3.1
<b>17 Language Schools</b>										
State subsidy (mill. DKK)								0.4	0.3	
<b>State subsidy (mill. DKK)</b>	8.1	19.2	16.1	75.2	85.2	90.7	54.4	67.9	42.7	22
<b>User financing (mill. DKK)</b>	0.0	0.0	0.0	0.0	0.0	10.9	16.0	22.5	19.5	22.4
<b>Total amounts</b>	8.1	19.2	16.1	75.2	85.2	101.6	70.4	90.4	62.2	44.4

State subsidies can be derived from two sources.

Subsidies under the category "Sektornet Total" directly figure concerning the Budget Act.

In the category 'ITMF schools' the figures derive from the ITMF appropriation. This is a pool of originally approx. DKK 300m. to be used broadly within the area of 'ICT, media and primary and lower secondary school', and through this it was possible to find the financial basis for offering Sektornet connection to the approx. 600 schools that were not included in the first wave of the Sektornet roll out.

## **Organisational aspects of SchoolNets**

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Centralization of the support, primarily for upper secondary schools and basic schools, began in 1997. Since this year, centralization of the support regarding teachers' training colleges and vocational schools has taken place at UNI-C. The reason for the centralization lies in the use of large, joint administrative systems of these institutions.

## **Examples of Schoolnets**

[www.skolekom.dk](http://www.skolekom.dk)

The SkoleKom is without comparison the largest and most important service. The SkoleKom is a nationwide mail and conferencing system for teachers and students below university level in Denmark. The service is included in the Sektornet package, but is not limited to this. At present there are approximately 600.000 registered users, 60.000 closed conferences and approximately 2.000 open conferences. Perhaps more important, is that the registered users are active, and there is considerable activity in the conferences. It should be mentioned that SkoleKom is based on the product FirstClass®, and that today SkoleKom is the largest installation of its kind in the world.

<http://www.emu.dk/>

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Via the EMU there is an access to the services that are available to the educational world, including Sektornet's services.

At present the EMU is among the 25 most frequently visited web sites in Denmark.

[www.person.emu.dk](http://www.person.emu.dk)

person.emu.dk is a server, offering a free web site to teachers and students. The only requirement is that they also have access to the SkoleKom.

<http://skoda.emu.dk/>

The SkoDa is the short form for the Database Service of Schools in Denmark. It is a basic collection of databases, which can be used in education by teachers and students. The SkoDa is a subscription service, and at present approximately 2.400 schools are registered.

## **Use of ICT in schools**

The number of pupils per computer has fallen substantially since 1992, down to six pupils per computer in 2003. The number of pupils per new computer has seen a similar trend as the aggregate number of pupils per computer. In 1992, there were 63 pupils per new computer compared to 10 pupils per new computer in 2002.

In spite of the low number of years, in which statistics on the number of computers with Internet access were carried out, a markedly upward trend is noticeable: In 2002, there were nine pupils per computer with Internet access against 18 pupils per computer with Internet access in 1999.

In 2004, 17 per cent of the population had used the Internet within the last month for purposes relating to education and training. Correspondingly, 9 per cent of enterprises used the Internet for training their staff in 2004.

Accordingly, Internet use for education and training has increased slightly over the last two years among both citizens and enterprises. For enterprises, by 1 percentage point from 2002 to 2004, and for the population by 2 percentage points from 2003 to 2004.

One reason why the population got a higher figure of Internet use for education and training than the enterprises is that the students use the Internet to a wide extent, but typically have little or no connection with the enterprises' training activities.

The number of computer driving licences, the Danish "PC-kørekort", has increased since the beginning of 1997 from 8.800 to about 234.500 computer driving licences in 2004. PC-kørekort is an internationally recognised licence and comprises training in seven different computer skills. The number of computer driving licences issued peaked in 2000 when 50.000 driving licences were issued. Since then, the annual number has decreased, probably due to generally improved computer skills among the population.

In 2003, nearly 20.000 computer driving licences were issued. In cooperation with the Danish company Dansk IT, the Ministry of Education issues a computer driving licence to teaching staff. The licence is aimed at teachers at different levels of education, and about 43.000 driving licences had been issued in 2004.

## References

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