

anything interesting on tv ?





Christian S. Nissen
director general, DR

SmartScart is a Danish invention which paves the way for using a tv set for receiving, reading and sending e-mails. Swift, simple, safe - at the cost of a fast food family meal. A small box (approx. the size of a half pound of butter) simply plugs into the scart slot on the back of the tv - and you're up and running.

tv as an interactive communication unit

SmartScart invites users and information providers into an interactive communication circuit, offering a wide range of possibilities and benefits for both parties. Amongst the benefits are simplification and cost reduction in the fields of time and use of resources.

The system enables providers of goods, services and information to reach their customers and end users in an easy, quick and inexpensive way.

In addition to the e-mail services, users are enabled to use the provided services: e.g. order groceries from the supermarket, banking, obtain information from public services such as state, council, employer, unions, clubs etc. via the tv.

free e-mail via DR POST

DR makes our analog tv net available and offers every SmartScart user a free e-mail account at a new service called DR POST. This enables direct communication from

index

possibilities	3
advantages	4
target users	8
how it works	9
e-mail for everybody	10
an example	11
the sofa view	12
technology/backoffice ...	13
security	14
smartscart ltd.	15



This is the tool that facilitates direct, targeted and efficient communication - at a non matched low cost

how can my enterprise benefit from SmartScart?

DR-POST is an opportunity for companies, authorities, organisations etc. to communicate directly to their respective target groups: customers, employees or members.

The connection is fast enough to handle considerable information quantities, secure enough for sensitive data like banking data - and so intuitive that neither training nor specialist knowledge is required for company or end user.

direct marketing

Direct marketing may be communicated swiftly and inexpensively via DR POST. The media is flexible, efficient and easy to use - and the contact price is extremely attractive. The system offers the possibility of daily one2one contact at the choice of the customer: a crucial, competitive parameter for companies focusing on a high service profile.

focus is on the end user

Contrary to the internet, DR POST doesn't offer end user anonymity. The information provider always knows the user's identity, and is thus enabled to offer highly adapted end user services.

Given today's information torrent, it is vital to offer the end user a short and direct cut to the core of the matter. DR POST provides your company with the facility of just that.

some advantages

The **financial sector**'s daily customer information exchange can be greatly facilitated by SmartScart in that the system lets the customers attend to their banking routines in an easy and uncomplicated way. Thus, the end user may e.g. pay bills, transfer money between accounts, check validated account information and trade stocks and bonds via DR POST. The service may not fully replace snail mail - but it may very well reduce physical handling, postage, paper expenses etc. Plus benefit the environment.

Building Societies may calculate and provide the end user with constantly updated information, e.g. about the possible gains of a swift re-mortgage. Members may check their accounts, loans, terms and conditions any time.

Opinion Research Institutes and Public Opinion Poll firms may reduce interview costs and increase statistical precision by using DR POST for demographically representative user panels with thousands of participants.

Insurance companies may want to offer policy and coverage information, pension offerings and customer loyalty schemes plus seasonally relevant advice, tips, charts, calculations and on-line claim notifications.



Financial institutions can benefit heavily from reduced postage, paper and handling expenses. The media invites the establishment of new and fresh self service functions for the customer to use at any time from home.



SmartScart offers an endless number of possibilities for the company that wants to cultivate the still immature electronic mail order market for electronic goods and services.

Traffic enterprises may establish dynamic databases containing voluntary user profiles, thereby offering end users travel planning and information about delays, route changes etc. in trains and buses relevant to individual interests.

Airline companies and other enterprises with widely ranged customer loyalty programmes may easily and inexpensively transfer communication to DR POST and reward customers for using the media.

Travel agencies can keep end users posted with individually relevant and last minutes, let the end users read the catalogues on screen and provide information about destinations, lodgings, temperatures etc.

The retail trade is provided with a simple and user friendly marketing and shopping channels which also presents an environmentally and economically profitable alternative to mass distributed printed advertising.

Oil companies get the opportunity to keep house owners informed about prices and offers on fuel oil, services and offer credit customers advantages such as easy access to account status, special campaign offers etc.

For **wholesale societies** and other **member based enterprises** DR POST is an efficient, inexpensive and flexible supplement to print materials - and a useful tool to facilitate customers and member contact.

Real estate agents may publish sales lists and contact potential buyers in the database with offers for properties, relevant to their wishes.

some advantages

Authorities and public offices may increase and facilitate citizens' access to personal information through self-service via DR POST - at the same time releasing staff resources for other tasks.

An increasing number of citizens today are showing interest in self-service and want easy, round-the-clock access to obtain public information. This is made feasible by SmartScart and DR POST.

Employers can keep daily contact with home based employees, notwithstanding their location. Night shifts and staff on overseas assignment can be kept informed on the same level as other employees about e.g. new hires, company policies, personnel news etc.

Unions are traditional heavy mail users and provide their members with information which might as well be communicated via DR POST. In addition to obvious cost reductions in handling, paper and postage expenses DR POST presents the possibility of quick, easy and inexpensive two-way communication, thus enabling member ballots, polls etc. At the same time, a potential technology gap between the members are bridged, because everyone knows how to operate a tv set.



There are many advantages to the personal contact - but electronic self-service may sometimes be faster, cheaper and provide quicker answers to citizens' demands and needs.



For cultural and leisure activities it is key to offer citizens and customers quick, easy and precise tools to engage in the relevant offers. DR POST is an efficient supplement to the existing information services in this area and maximises the customer potential.

The Service Sector is provided with a whole new range of tools for customer communication, e.g. interactive reservation services, planning tools and electronic forms. The new media can pave the way for expansion of interactive services.

Electronic **Ticket and seat reservation** can be made easily available for everybody, including customers unfamiliar with electronic self-service or without pc skills. With DR POST hooked up to the financial institutions, payment for ordered services may easily be integrated in the reservation and order process.

The supply of **cultural activities** may be arranged and lay-outed to make it easy for pleasure and leisure seekers to overview, find and pick relevant offers. Available seats and tickets can be updated on-line, and the same goes for opening hours, cancellations etc. This media makes it possible to establish individual interest profile with automated notification of the individual end user when something relevant is on schedule.

Sports clubs can propagate match results, offer and receive application forms, tournament entries and keep club members informed about arrangements. DR POST contains format facilities similar to web-formats - which means no investments in extra server capacity.

target groups

More than 40 per cent of the DK households are still without internet access. But every household owns at least one tv set with the text tv facility, and each one receives the signal from DR1 - two of the prerequisites for benefitting from SmartScart. The third prerequisite is a button operated phone (cell or regular). It's as simple as that.

The average viewer watches tv between two and three hours daily. Checking e-mail and other personal info seems an obvious choice.

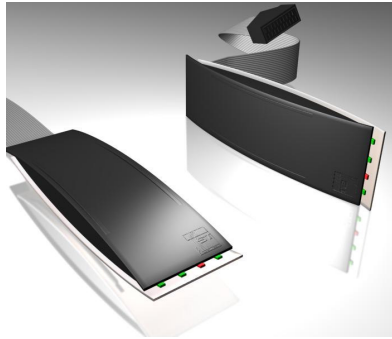
In spite of the a high home pc coverage, many pc users still do not possess the necessary skills to operate and benefit from its possibilities. But everybody knows how to operate their tv - and for them, SmartScart may be a simple door opener to electronic services, information seeking etc.

The senior citizens are showing a rapidly increasing interest in e.g. e-mail and other electronic services. A recent survey presented the fact that the number of seniors taking classes in e-mailing has increased substantially within the recent year.

The substantial interest in self-service is documented in a market survey, carried out by DR in September 2001.



The number of consumers interested in the use of e-mail and electronic services is increasing daily. SmartScart and DR POST satisfy every customers' need for this - without prerequisites like pc, technology skills or expensive equipment.



The SmartScart box is small and fits in the tv scart plug and needs neither software or configuration. All it takes is a text tv enabled set with a scart plug and a button operated phone.

There are 3 simple prerequisites:

1. a tv set with a scart plug
2. a button operated phone (cell or regular)
3. a SmartScart box

The small SmartScart box costs less than dinner at your favourite café and comes with power supply and scart-cable. Just insert the SmartScart box into the scart plug at the back of the tv set, and you're ready! No configuration. No software. No switches.

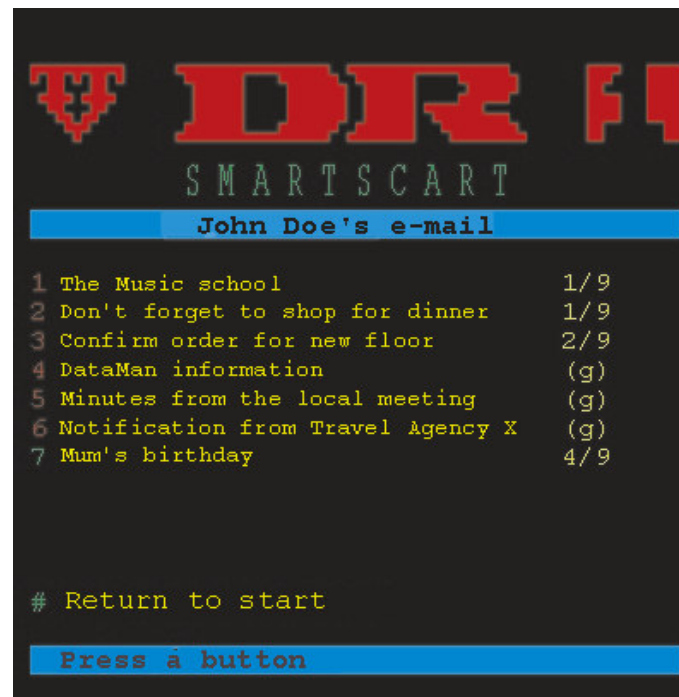
The tv set must be text tv enabled to use DR POST. User ID and PIN code is then keyed in by button phone, and you're connected. To send or receive e-mails and use the electronic services, the user operates the phone in the same way as with SMS messages.

DR POST may also be accessed from other tv sets than the user's own - provided that he brings his SmartScart box and plugs it into another tv which meets the above mentioned requirements.

If this tv receives its signal from another transmitter than the home tv, the connection number will probably differ from his usual one. The new connection phone number can be found on the start page when the text tv is turned on.

DR POST offers a free mail account to everybody. From this account the user may send and receive e-mails, forward mails to or receive forwarded mails from other accounts. In practice, this enables any employee to access his company mail account from home. An icon will show when the e-mail has attachments, e.g. pictures or text documents. These cannot be opened via the tv set.

The DR POST e-mail account is accessible from a pc. DR's home page (www.dr.dk) will contain a link to DR POST, so the user can access and print his e-mails from any PC hooked up to the internet.



John Doe may access his e-mail in-tray as soon as the SmartScart box is plugged in. Whenever he wants to check his e-mails, he just dials the access number on his button phone and keys in his personal PIN code. That's it!

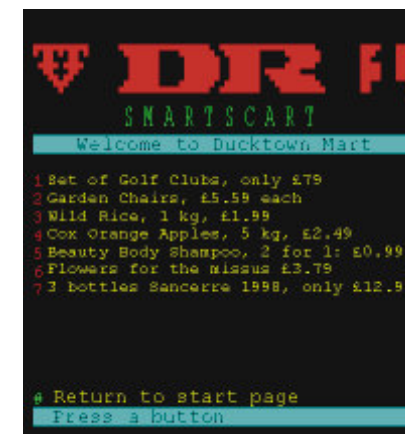
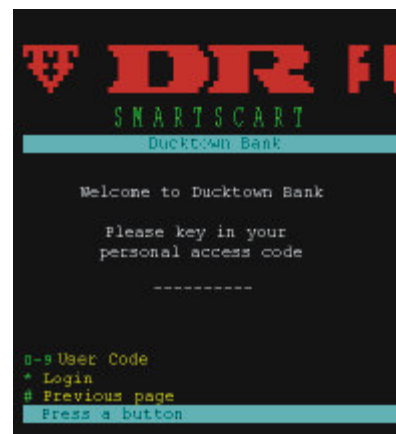
John Doe has inserted his SmartScart-box in his set. With his personal 8-digit user ID and his 4-digit PIN code, he is ready to begin. The system is intuitive and easily operated.

DR POST sends no information until John Does asks them to. This is how he does it:

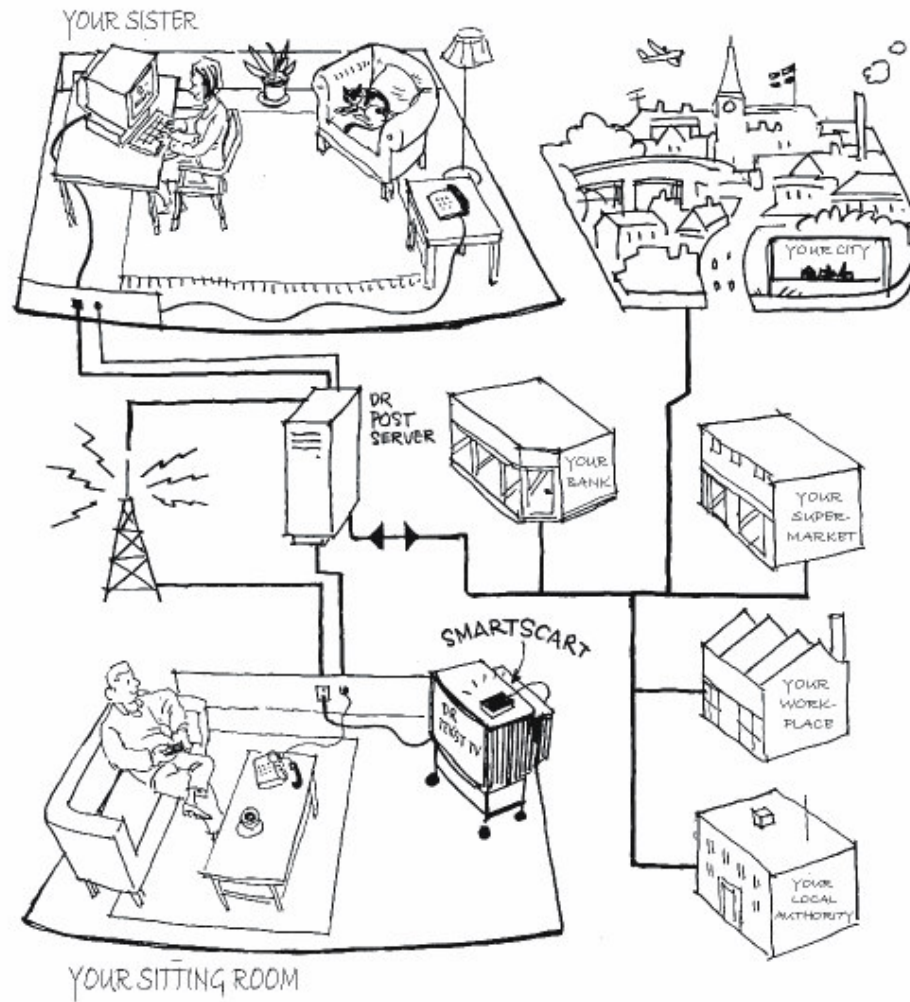
1. John calls the DR POST server, which guides him on via voice response.
2. On his button phone, he keys ind his user-ID and his PIN-code.
3. Seconds later, John can view his own, personal start page on the screen. From there, he may navigate from e-mail to electronic services, information offers and back again.

John Doe's personal data is completely safe and secure. Each message is encrypted and readable *only* by means his own, personal SmartScart box.

When John Doe has checked his accounts, paid his bills and transferred the sum he owes his sister to her account, he may feel like hunting for news, special offers or good prices.



a sofa view



This illustrates how the end user can communicate with employer, authorities, goods and services providers and friends at the same time. A simple, clear and easily operated menu system guides the end user to your company's pages.



The SmartScart box contains no memory. If you want to review a page, you must look it up again. Most messages are in the air for less than a fifth of a second - and even then, only from one out of twelve transmitters.

DR POST traffic pivots around a so-called Master Control Server (MCS). When John Doe calls up and requests system access, the MCS checks his user-ID and PIN-code, okays them and calls up his personal start menu on screen.

If John Doe wants to check his wages account: The MCS transfers his request to his bank's Web-server, after which the bank takes over the communication with him. Thus the bank (like any other information provider in the system) is responsible for the verification of John Doe's legitimate access to its information. The bank may choose to use the Master Control Server protocol or ask him to key in additional identification.

That done, the bank finds, encrypts and transmits John Doe's requested information to the MCS server, which in turn compresses and transmits the page to his local tv mast. Here, a text tv inserter inserts the page into the tv signal's VBI-lines. The signal is transmitted and cannot be deciphered by anyone but John Doe. His SmartScart box - and *only his* - is now able to convert the encrypted data to a standard readable text tv page. **The circle is drawn.**

The information provider (web administrator) obtains secured access to the central system, where he can find a template for the DR POST page layout plus other useful tools. The system is widely tolerant of individual designs and adaptations according to the providers visual image and other wishes.

The information provider may now design and review his text pages on a pc and evaluate screen appearance. The system contains a simple user manual for establishing secure access under the SSL protocol. User support may also be obtained from the DR POST call center.

The DR POST signal is encrypted. From the information provider to the Master Control Server with the internet technology Secure Socket Layer and from the MCS to the user with AES 128 bit encryption.

Most messages are in the air for less than one fifth of a second and are transmitted from one out of twelve transmitters. Standard video equipment is unable to register and read the VBI lines - and moreover, it would require a totally unrealistic computer capacity to break the encryption (see caution).

No two users applies the same encryption key. Each single SmartScart box is produced with a unique encryption key and a serial number, which a **tasteoperator** later connects with the information about the end user's personal data.

Then, the system automatically generates a PIN-code, unseen by anybody but the end user.

Only the end user has access to his electronic mail box. Each family member may have a personal and individual address, protected by an individual user ID and PIN-code. Thus, each family member may uphold an individual e-mail address and menu layout.



*This is the degree of the SmartScart encryption: Imagine that every one of this planet's six billion individuals each own the fastest pc available today. All these computers are used for one purpose only: to test different keys to the SmartScart encryption system. After one million years of uninterrupted testing on the six billion computers, they will have tested **less than 1% of the available keys.***

SmartScart
Technology A/S



*The SmartScart system
was developed by:*
SmartScart Technology A/S
Christianshusvej 193
2930 Hørsholm
Tel: +45 7027 7709
Fax: +45 7027 7769
info@smartscart.tv
www.smartscart.tv

DR
POST

tv-byen

2860 søborg

tel. +45 35 20 83 01