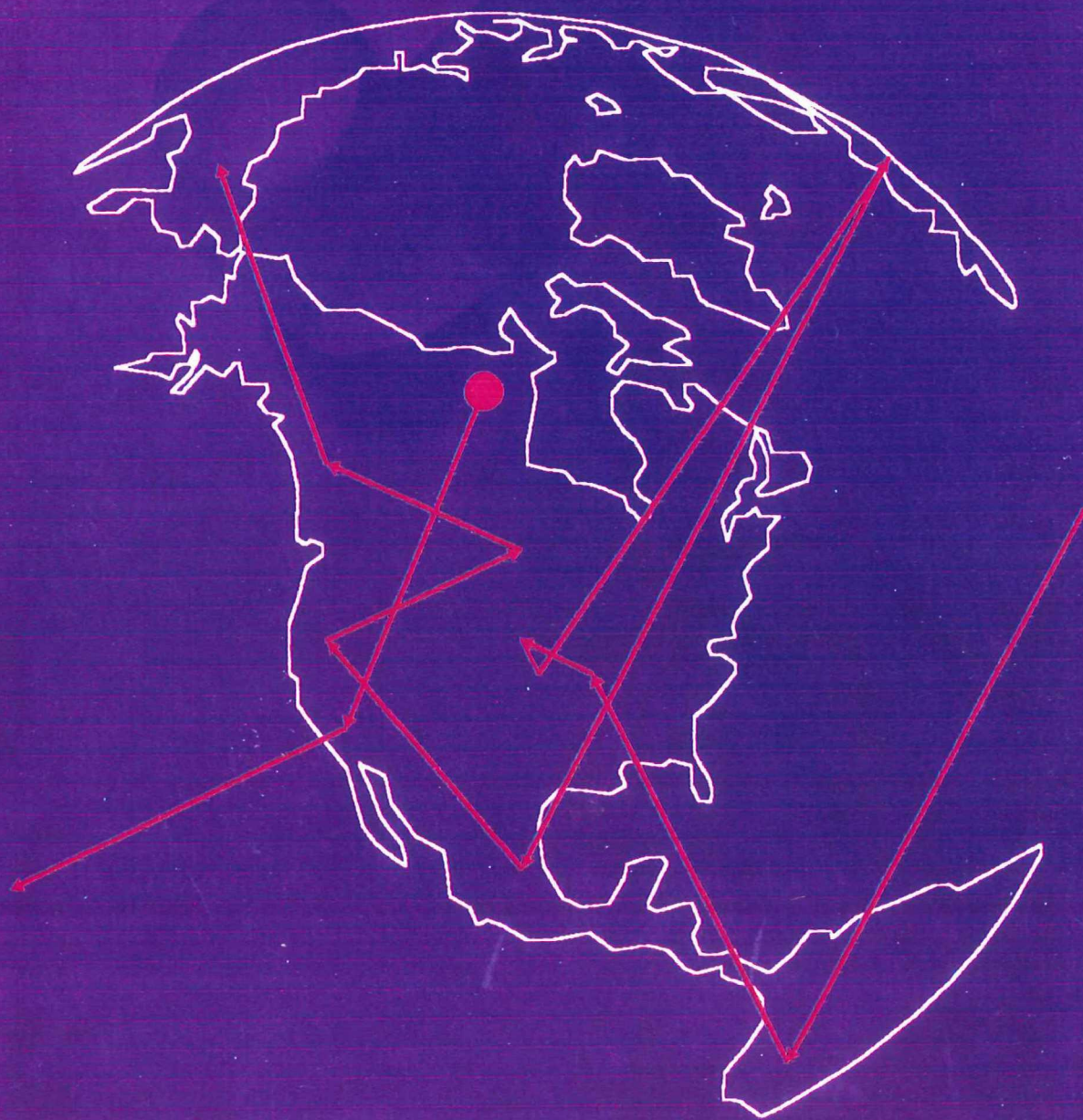


# *The WWW?*

What is it and what can Philips Media do with it?





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## What is it and what can Philips Media do with it?



Report of a stage at Philips Media Systems.  
Eindhoven, juni 1995

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*The appendix of this report is an separate paper*

## Introduction

This document is a result of a traineeship I did at Philips Media for three months. The instruction was to find out what's on the internet and what Philips Media should do with it. To say what's on the internet is not as easy as it sounds. The internet is far too big to see all of it in three months, even a life-time will not be enough. So I could not simply look at all places of the internet and pick out the interesting things. I had to find something that could navigate me to the most interesting places on the net. There are a lot of possibilities. For example you can connect to the homepage\* of your provider\* and click from there, you can ask your friends about interesting places, you can check hotlists\* and go to the places they recommend you can read magazines and there will be more possibilities.

I used them all because I think most internet-users will also use all entries that could help them.

The first part of this document gives you an impression of the physical internet and what the user sees of it.

The second part is a suggestion about what is possible with the internet and CD-i.

Originally this report is written in a computer-presentation, this causes some problem when reading it on paper, because in a computer-presentation it is possible to make links in a page (a link is mostly a blue word on which you can click with your mouse. When you do that you get another screen with more information about the subject you clicked on).

On a paper you can't make a link. To solve that problem I changed my lay-out. A lot information which linked is in the appendix and some is in grey blocks.

I wrote this document assuming the reader does not know anything about internet

\* These words are explained later.

## About this traineeship

I did a traineeship at Philips Media for three and a half months. I had to look at the internet and find interesting things for Philips Media. Before I could do this I had to look at CD-i first. I worked on it for about a week. Then I started making my computer ready to access the internet. After more or less 3 weeks everything was ready.

For a month I was (as it is called) 'surfing' at the internet. This means I was looking at the internet. Later on I will explain more about it.

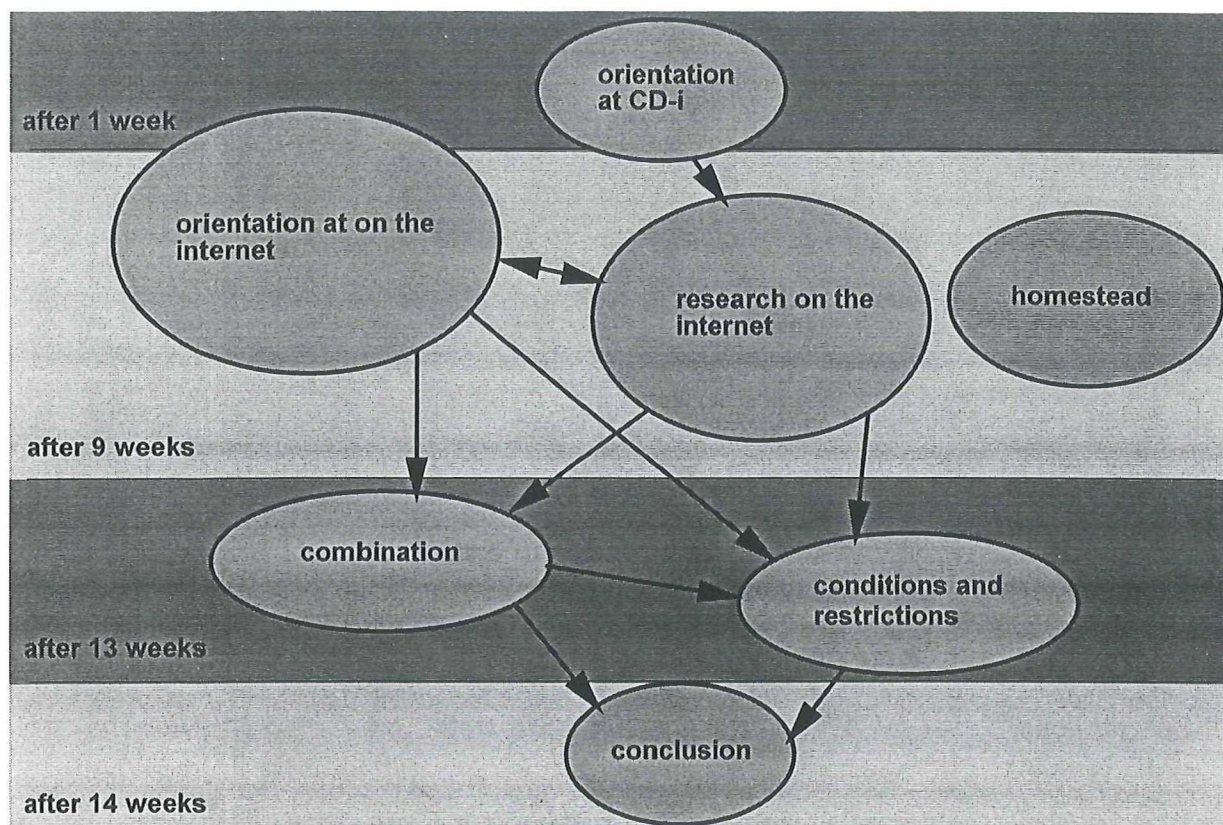
At the same time I tried to find everything written on paper about the internet. I was already doing this before I came at Philips but now I read even more. In the chapter about magazines you can read more about this.

At the same time another project had to be done, it was called homestead. This had little to do with my original instruction. I did a user trial of the homestead CD-i for about two weeks. In the appendix you can find a copy of my report.

After two and a half months I forbid myself to look at the internet (at that time I was addicted to it). Everything I had learned and discovered had to be written down. The things I wrote were partly the restrictions of the internet, and partly experiences.

The last week of my traineeship I wrote the conclusion of my research & made the computer-report.





## History of the net

The Internet was conceived way back in 1969 when the Defence Advanced Research Projects Agency (DARPA), a United States defence department, found a need for method of exchanging military research information between researchers based at different sites. A network, consisting of four computers, was established and went by the name of the ARPANET.

By 1972 there were 37 computers, or nodes, on the network, which had become known by now as ARPANET, because of a change in the name of the agency responsible. However, along with the growth of the network had come change-change in the way it was being used. No longer was it just a vehicle for the exchange of research data; now its users were talking to each other through private electronic mailboxes. ARPANET saw a continued and steady growth, and its users continued to diversify. A separate network, MILNET, was created in 1983 to enable the sensitive military research to continue without fear of compromise from the ever-growing number of people using ARPANET.

If the internet was conceived in 1969, then you could say the baby was delivered in 1984 when the National Science Foundation established the NSFNET. The NSF had created five supercomputer centres whose resources were required to be accessible to any educational facility that wanted them. These centres were to give the academic world access to some of the world's fastest computers, and were so expensive that only five could be built.

Originally, the plan was to use ARPANET to allow for the distribution of this information, but this was scrapped largely by red tape. Instead the NSF took matters into its own hands and came up with the NSFNET which used the same basic technology as



ARPANET, connecting educational facilities on a regional basis. Each region had at least one site connected directly to a supercomputer centre, which meant that every site in the region was also connected piggy-back style, passing information along the route of computer sites. NSFNET was remarkably successful. So successful, in fact, that by 1987 the system was fast becoming overloaded with so many people using it, and many of them not for the original purposes of academic research.

In 1987 the NSF network was given a massive overhaul, with faster telephone lines and computers, and opened up to just about any academic researcher, government employee and even international research organisation provided they were from countries who were allies of the United States. Into the 1990 and the network, or the Internet as it was now known officially, was made accessible to anyone who could connect to it.

(source: A book distributed free with Macformat 23, April 1995, "Into the Net, Everything you need to know about the Internet", compiled by Clive Parker, published by Future Publishing Ltd)

## The lay-out of the internet

I will try to give a short explanation about the internet. First I will describe it physically and in a later chapter what a user sees of it. I made a picture of the physical structure of the internet (it's a little bit simplified, but the main parts are in it).

As you might know the internet is a huge computer-network. The computers of the internet, called servers (or routers), are all over the world and are connected to each other with special wires (MBONE), in the appendix you can find a chart of them, made on 11 may 1994. In this chart you can see that some connections can move digital information faster than other links (The fat lines can move 34 megabytes per second, the thinner lines 2 megabytes per second). There are also servers who are connected to the internet with even slower cables.

On the servers of the internet a lot of information is stored on harddiscs. The first people who put this information on the computers were military people, they were the first users of the internet. Later on this information was distributed by universities, and now everyone is putting information on the internet. The information on the internet can move through the wires that connect the computers of the internet.

So there is a lot of easy moving information, but as long as we don't have a computer connected to this internet we cannot do anything with it. There are several ways of connecting yourself to the internet. At home till now, the easiest way of doing it is with a telephone connection. To do this you must have a computer, it does not matter which, the internet-information uses a language called TCP/IP (Transmission Control Protocol/Internet Protocol) every operating system (DOS, Windows, Macintosh, UNIX, etc.) can understand.

You have to connect your computer to a so called modem, this is a little box that translates your computer information (digital information) into information a telephone wire can transport (analogue information). The modem must be plugged into a telephone-plug. To establish the connection, you make your computer call a so called internet service provider, this is a company who has it's own server. This company will translate your signal back into digital information and connect you to the internet. Because you are calling to the service provider you pay local or interlocal telephone costs. Therefore it's wise to have your so called 'account' at a service provider in the neighbourhood, so you can call for local tariffs.



This way of connecting to the internet is called a SLIP, PPP or ARA connection. Depending the kind of language your modem talks to the modem of the service provider. These 'languages' are called protocols. SLIP is the most used protocol (Serial Line Internet Protocol) for DOS computers (most user friendly), PPP (Peer to Peer Protocol) is not that user friendly but faster then the others, ARA is the most user-friendly for Macintosh.

Another way of connecting to the internet is asking the telecommunicatie-service of your country (KPN in Holland) to make an ISDN-connection (Integrated Services Digital Network) to your home, This is a cable that can move information faster then a telephone wire. The speed of an ISDN cable is 128 Kilobyte per second. Nowadays only companies do this because it is rather expensive, in the appendix you can find more about this way of connecting. [link to: ISDN has two kinds of connections, ISDN2 and ISDN30. ISDN2 consist out of two different 64 Kb/s connections to communicate and a 16 Kb/s connection for signals. For companies there is also an ISDN30 available. This cable has 30 64 KB/s connections to communicate and a 64Kb/s communication line for signals.] The fastest way to connect to the internet is to have your own server with one or more direct links to the internet. At that moment you are connected directly to the MBONE, you're connection is always open then (so you don't have to call an service provider) and all kinds of information will pass through your computer to go to someone else, your computer is a server of the internet. This kind of links you have to arrange with organisations who own parts of the MBONE. For example all universities in Holland are connected to Surfnnet, service providers are mostly connected to NLnet. Organisation like Surfnnet and NLnet take care of the MBONES of the internet in their area. This kind of connection is only for companies available.

The latest developments are connecting the internet to the television, for CD-i an interesting subject. This principle uses the television cable network instead of the telephone wire network to reach the MBONE. In Holland there are experiments done in Zuid-Holland and Maastricht.

Special about this kind of connection is that untill now it is for a consumer the only way of connecting to the internet without the involvement of the big telecommunication companies (KPN). In the appendix there is an article about it.

These developments are closely related to developments in interactive television. AT&T did an interesting research on interactive television (AT&T Project for Interactive TV), which can be particularly useful for the combination of CD-i and internet. On the conference Doors of perception I heard Vincent Grosso (Director of Interactive Services), he told the following things about this research:

The trial was done in Chicago. At first the interactive television began with a menu: sports, weather, news dates. The result of this experiment was that after a few weeks only 10% used the interactive television. The research team changed the sports item, they put more information on it, the member of users did not raise. Then they put a sports game on the network called rotisserie game, you can buy a virtual team and let it virtually play. Usage started to go up. AT&T was asked by the users to put an communication system on the TV, they did it and usage rose again.

The final conclusion they took from this experiment is that if you do interactive television you should have an opportunity to communicate and to do transactions. (In the appendix you can find a summary of the speech at Doors).

## **The speed of the internet.**

The speed of communicating with the internet depends on two things. First what kind of connection you have, I explained that in an earlier chapter. Suppose you have a modem at home. First your modem has to transport the information from your computer to the

server (or back). This step is faster when your modem is faster. Most people who have a connection at home have nowadays a modem connected to their telephone. The modem mostly used is an 14k4 (9600 baud, 14k4, and 28k8 are the 'normal' modems) at this moment. This modem can be used to send and retrieve text and pictures (movies are also possible but they take a very long time to load).

If you want to do video-conferencing or things like that you need a faster connection, at least an ISDN cable.

The second thing which influence the speed is how busy the internet is. Very popular places get that many requests (that's when someone is trying to reach a place) that the lines around that server are full. Information transport clutters up around these servers and slows up. When the U.S.A. is asleep, information can be transported more quickly. Now that the internet becomes more and more worldwide, the transfer rate is more constant, because the world is never asleep.

## **What you see of the internet.**

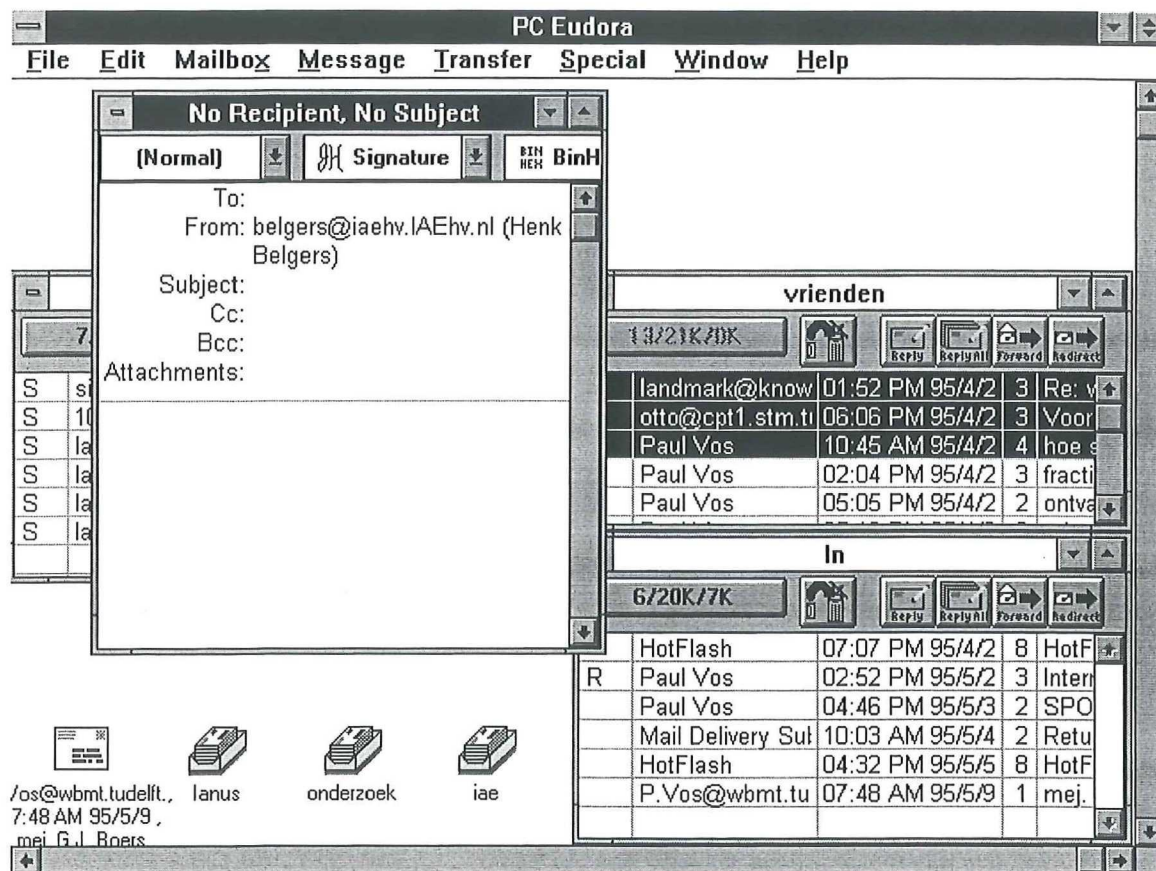
The things described in the last chapter are not that important to the actual user. An internet user is more interested in what there is to see of the internet, this chapter is describing that. What the internet currently provides its user will be explained historically. Simultaneous the applications used for this, are also mentioned.

### ***e-mail***

The first real use for the internet and still the most popular use is E-mail (electronic mail). E-mail is sending text from one computer to the other. As a user you type the text in your computer, you address it to the person who you want to send it to with his so called e-mail address and you send it.

To do this you need an application to translate the digital information from your modem or other internet connection into readable text. One of the first applications which could do this was Telnet. Telnet is a very flexible application, it is very simple, completely text-based and therefore very fast. Although it's very old and archaic in terms of the computer-world it is still holds a lot of uses. Also most applications you can send e-mail with nowadays are based on Telnet. More full-featured mail applications providing mail organizing, editing, address books and templates, have grown very popular as for example PC Eudora (see picture).





### more about telnet

Telnet is still used as a base for several mail applications but there are more things telnet is used for. There are on the internet so called MOO's and MUD's. MOO's and a MUD's are place on the internet where people build environments in text. You can visit these environments through internet and visit the houses built there and talk to their inhabitants (real people). You can even be offered a text-based cup of coffee. This will sound strange if you have never seen it, but it is rather popular. There are people 'living' on the internet for hours every day. In the appendix you can find an example, it is a part of the text I got when visiting a MOO.

Other applications based on telnet is chat. These applications make it possible to 'talk' in real-time to people on the internet, again by writing text. It's nearly the same as E-mail but the difference is you are on-line, the person you are talking to is also behind his computer and talks back to you directly. A big advantage of applications that use only text is that they are very fast.

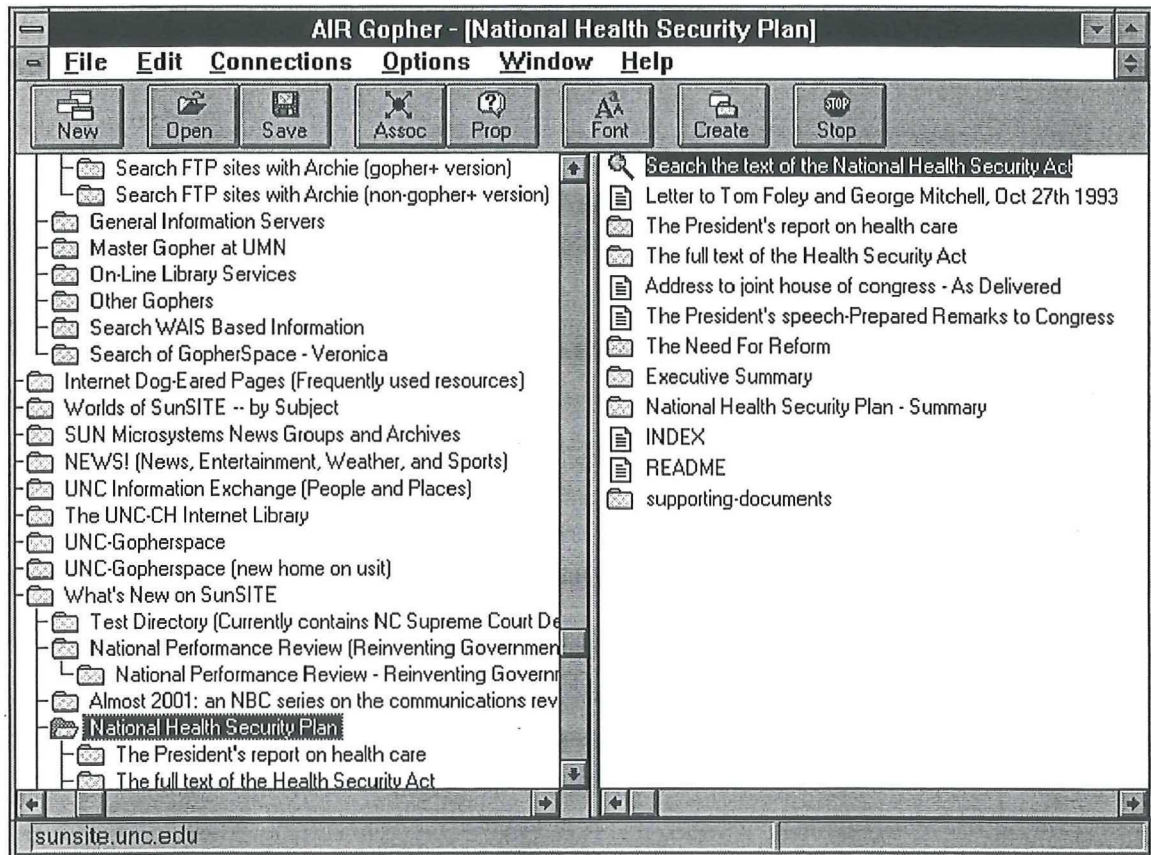
### ftp

Especially for the sending and retrieving of files, a different protocol has been developed: the File Transfer Protocol. This protocol can be used to download applications or large files stored on computers (FTP-sites) on the Internet. When connecting to a FTP-site a menu structure shows you the options of the files that can be downloaded from that computer. Some popular FTP-sites can hold thousands of different files with hardly any search structure.

## Gopher

Till the end of the eighties internet was used to move text and programs. It was not that big either. There were two big problems at that moment. The information available was very hard to find if you did not know where to look and there were a lot of different sources, with all different (telnet based) commands to use it.

Gopher solved much of these problems. When using Gopher you do not have to remember different addresses anymore, you can browse through a menu structure, with menu's you can select by clicking or typing the name of it. It looks like the file manager of windows. When arrived at the place you want to be the commands to use are all the same because gopher translates them for you. The universal and transparent user interface made this program very popular for searching through information.



## WWW

Because of the same reasons Gopher became popular (more user-friendly), the WorldWideWeb using a protocol called HTTP (HyperTextTransferProtocol) has changed the face of the Internet completely. Making it the standard of all information standards currently in the Internet. Initially developed for internal communication at the CERN research institute, the idea of the WorldWideWeb was to publish information on pages and place them on the central computer. These pages were then connected to each other through hypertext links, for example a publication could be linked to earlier work. Searching and reading information now became integrated in one browser.

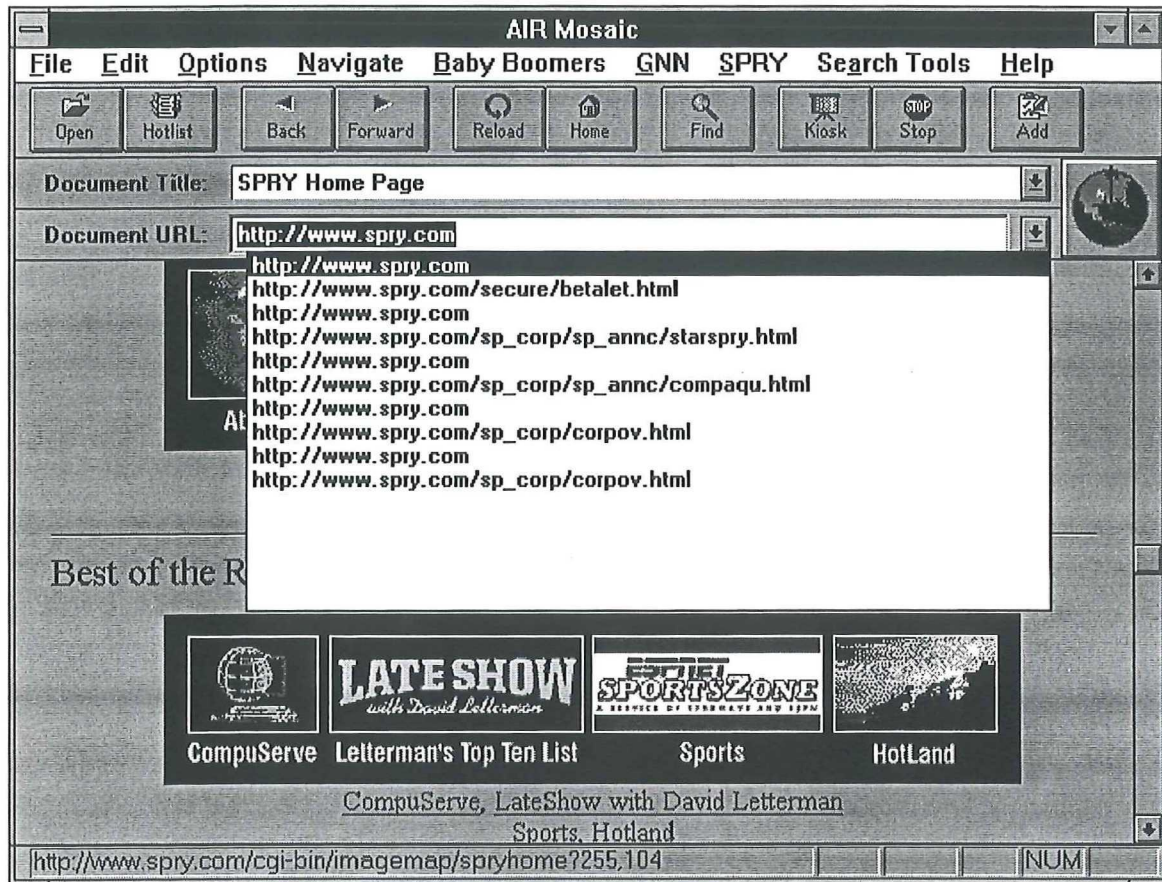
This protocol was adapted outside the CERN institute, where it became very popular to link the different WorldWideWeb servers through the hypertext links. The power of WWW is that it can even hold graphical information and files within the pages.

Through its popularity the amount of pages on the WorldWideWeb now are expanding with an exponential rate.



## Mosaic

The WWW can be explored through many different browsers. About a year ago the most was NCSA's Mosaic (National Centre for Supercomputing Applications). It's a very graphic way to look at the internet. Instead of clicking in a menu-structure mosaic uses the links of the WWW to navigate. Pages are created in a language called HTML (HyperText Markup Language). With HTML linking is very easy, every blue word, or blue framed picture is a link to another address on the WWW.

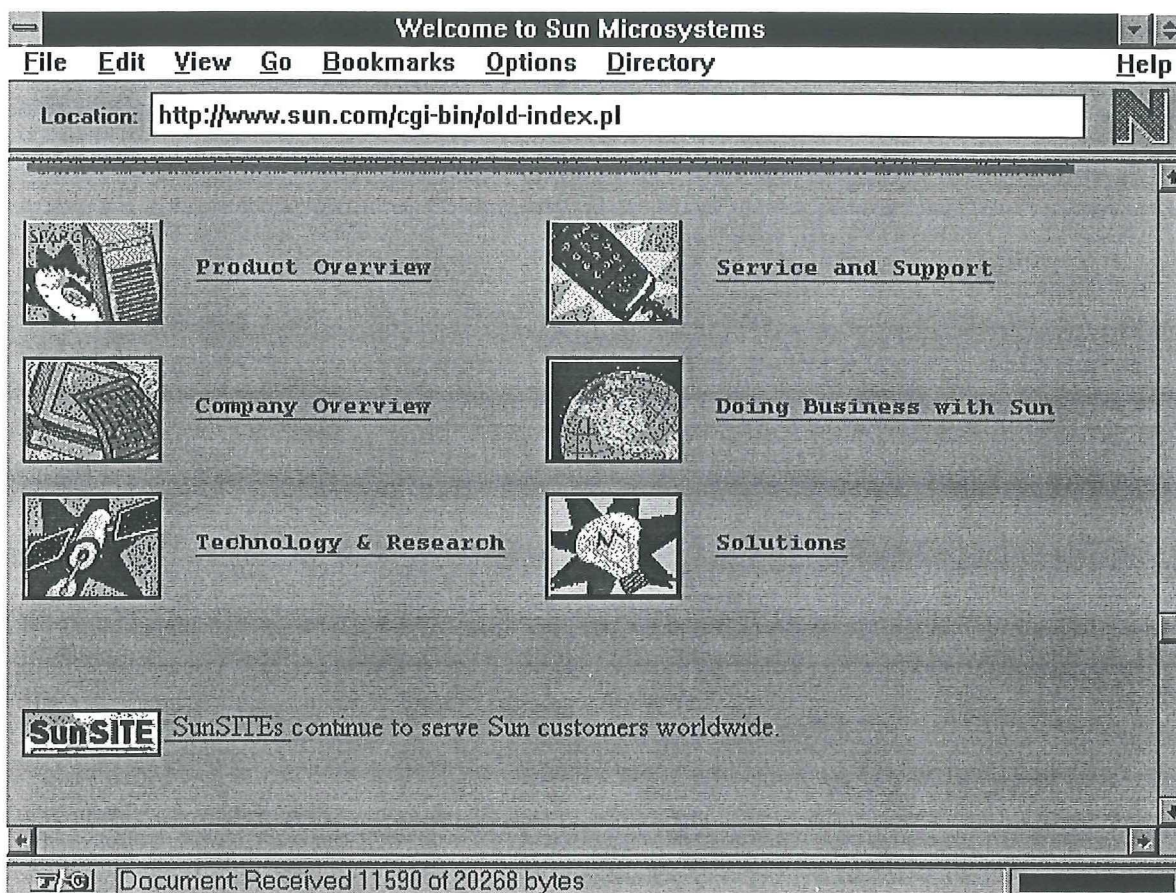


With Mosaic you can also browse and retrieve the information of Gopher, Telnet and FTP servers, even mailing is possible with this application. Many users of Mosaic know the internet only by this application.

## Netscape

At this moment Netscape is the most used internet browser. It's developed by the same person (but at another firm) as Mosaic and it's more or less a later version of Mosaic. As with all the applications described here you can always see all pages of former applications but it is important to know the opposite is not true. You can not see all netscape details on mosaic. It is even not possible to see everything made for the latest version of netscape with an older version





### HotJava

The newest internet browser, as far as I now at this moment is HotJava. It's not possible to show an example of it because it's only ready for Solaris computers at this moment. But it will soon be launched for OS/2, Windows Ntand MacOS as well. HotJava supports nearly all Netscape extensions but not all. The improvement of HotJava is that it is possible to incorporate little applications within a www-page. This makes it possible to add rotating text, jumping figures or anything else that can be programmed to a www-page.

### Browsers

What a browser actually does is sending an request to the server where the site is located to get a copy of a certain page. This information is send to your computer. Netscape is a faster browser then the others because it sends about 10 requests for the same page, giving the user a faster result, but slowing down the whole Internet traffic as well.

Because speed is always a problem of using the internet, all browsers have the opportunity to look for two different URL's. You can open for example two netscape sessions on your screen and type two different URL's. This way you can read one page while your computer is finding another.

## Research

The research I did for this stage contained four parts:

- The research at the internet itself.
- Compare hotlists I found on the internet

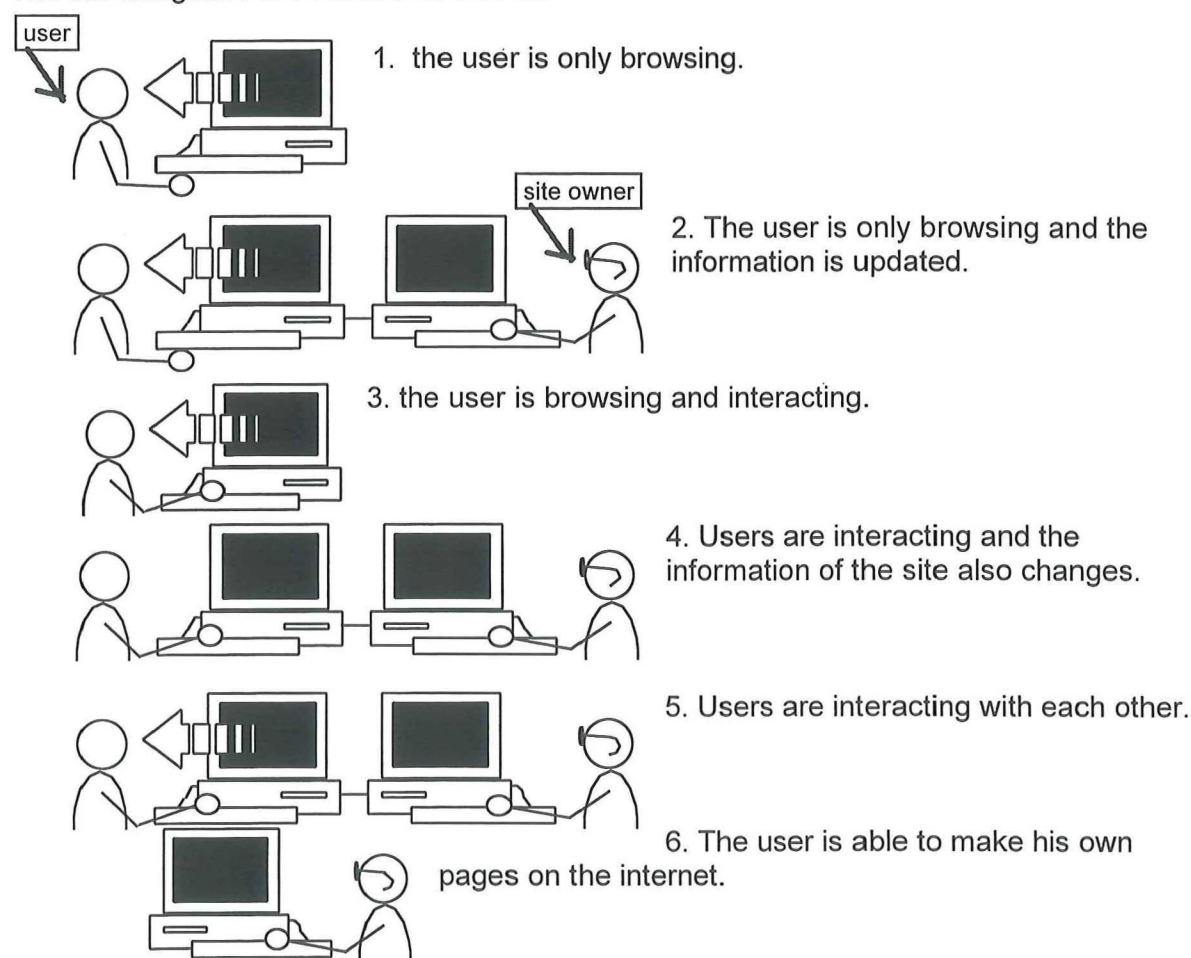


- Interviews on e-mail with people using internet a lot.
- Visiting the magazine-stores to look at the magazines about the internet and computers.

This chapter contains a description of these researches and the results.

### Research at the internet

As told before the internet is huge. Just looking at it with no plan would not be helpful. So I had to figure out some kind of structure. This structure has to give relevant facts for combining the internet with CD-i and it has to be able to contain all the parts of the internet. I chose for a structure based on interactivity. The six categories tell us who is interactive with the internet and who is not. This structure is very useful when thinking about internet and CD-i because you can see immediately the technical consequences your solution has. When structured a part of the internet in these six categories it is possible to combine them with other aspects of internet sites, such as popularity or something. The six categories are defined as follows:



Looking at the www on my computer (an 486 DX, with 4 Mb connected to a 28K8 modem) I made notes on the places I came (when you go to a site on the internet you can talk about it as a place you go to). I also made a print of the screen and if possible of the html-codes of the page. To make the notes I used a form.

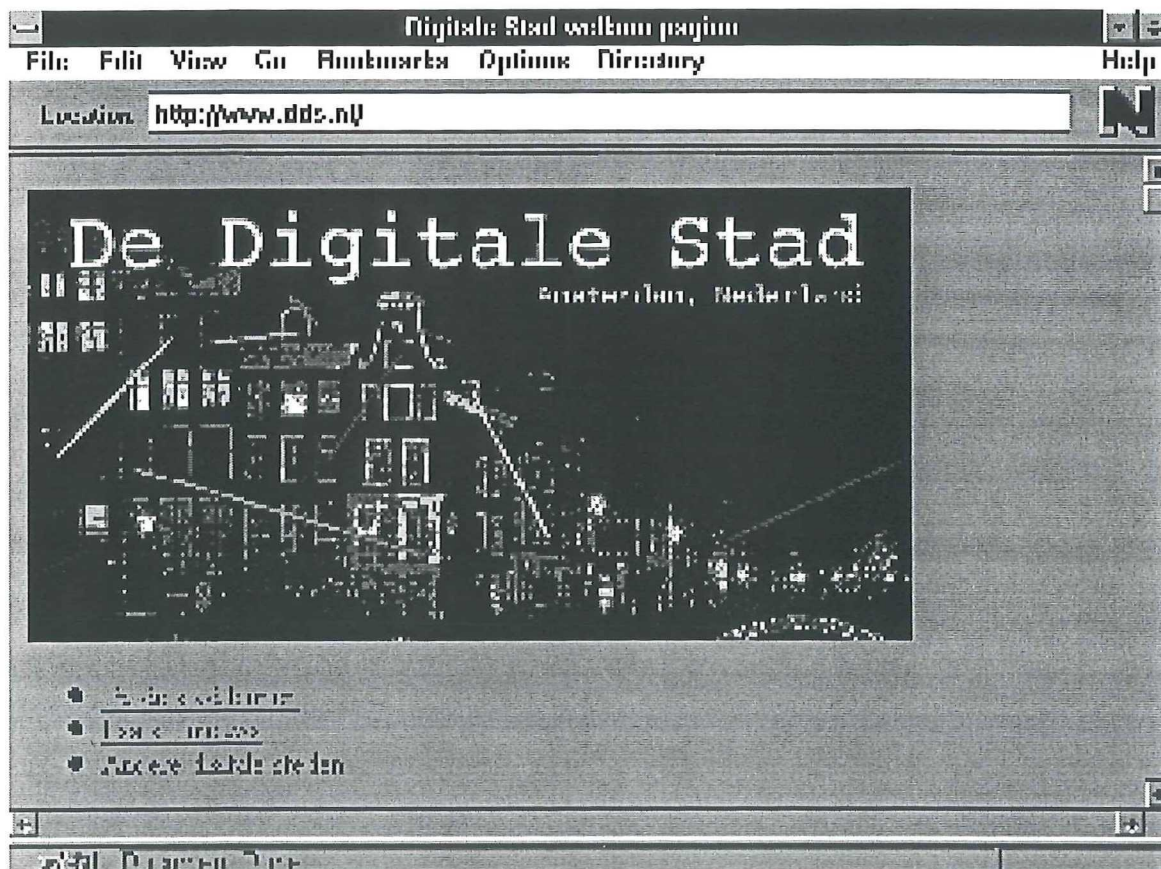
address on the internet is called an URL (Unique Resource Location). It is not possible to remember these addresses so something has to navigate you. Important to notice is that this research includes only the www, so e-mail is not as such in the matrix, only when writing something to the maker of a page. E-mail is and stays the most used tool of the internet.

## Interesting sites

To give an impression about sites on the internet, who might be interesting to use for CD-i I will give some examples in this chapter.

### **Digitale Stad Amsterdam** (<http://www.dds.nl>)

The Digitale Stad Amsterdam is a site on a Dutch server (XS4all, also an important service provider). A few years ago it started as a project sponsored by the city of Amsterdam. There are more digital cities on the internet, like the digital city of Eindhoven, the digital city of spry (also a provider) etc In Holland there are 9 cities on the internet now, 3 more are built. It's rather difficult to explain what a digital city is. It's a place where they tried to build a real city on the internet. You can find there a postoffice, a cafe, a library etc. What you can do in these places depend on the city. Most of these things can be done on the www without a city around. A digital city is a metafor, a kind of place where these things can be found easier.

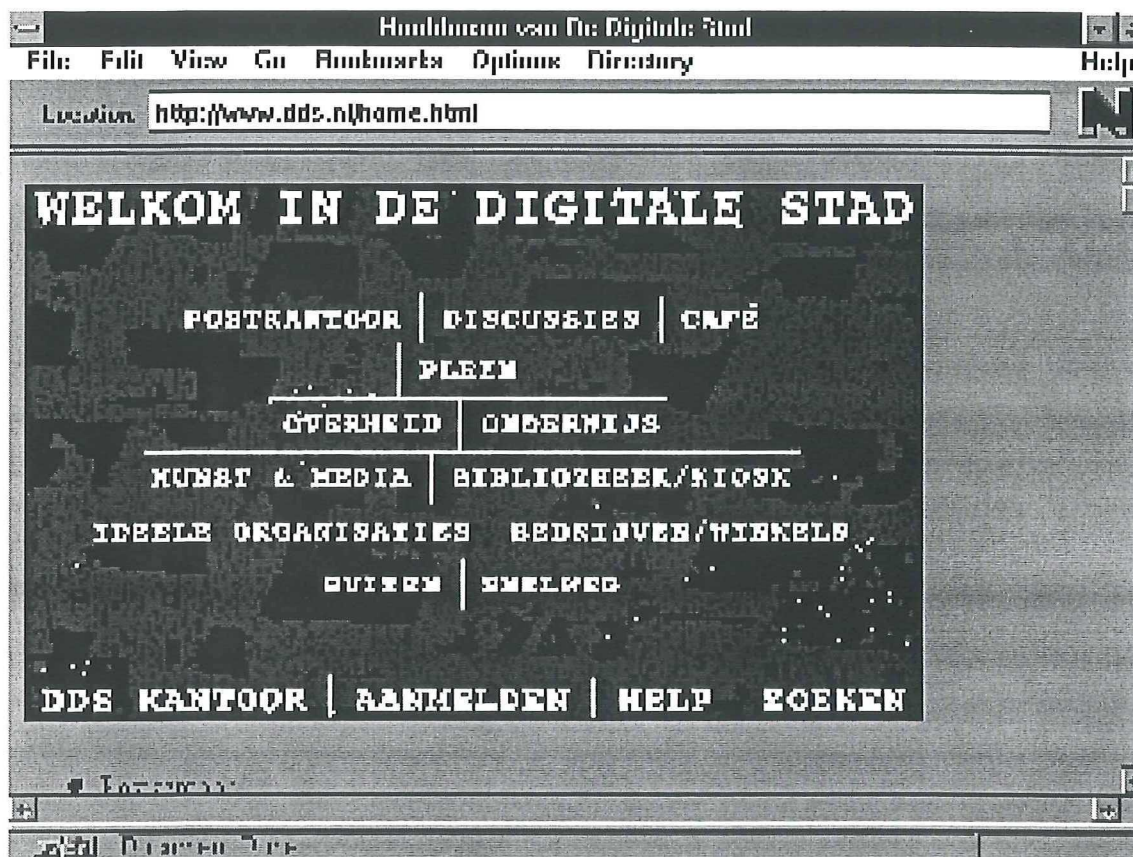


The digital city of Amsterdam is only open in the evening



In the digital city of Amsterdam you can find along others

1. A cafe, this is a place you can go and talk to people. You are on-line so you type something and people are responding directly. I visited it several times, there are mostly about 8 people talking to each other.
2. Discussion groups, This is actually a list of letters send to a certain place of the digital city dealing about a certain subject. Mostly about internet or politics. You can react on these letters.

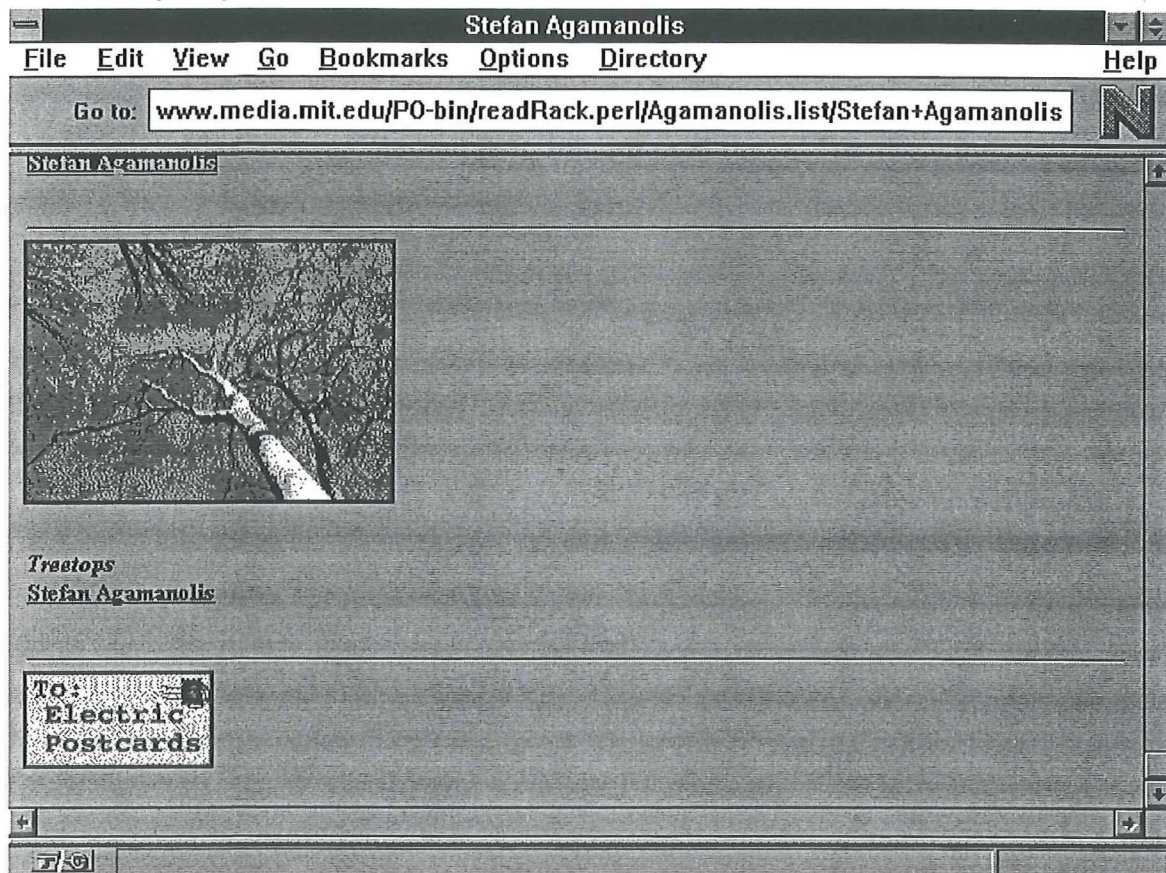


3. You can also subscribe to the digital city of Amsterdam, if you do this you can make your own 'house on the digital city. This is an example of it. There are about 200 houses on the digital city although it is rather hard to make one.

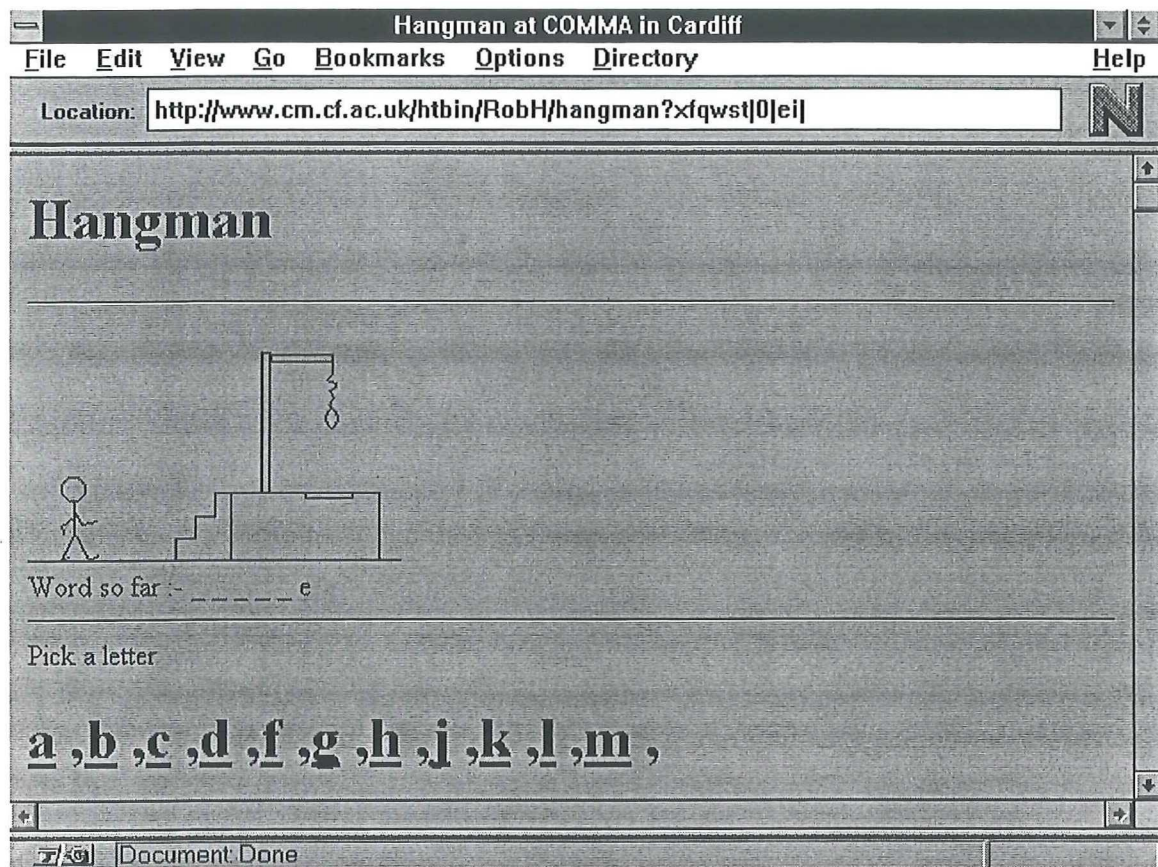
**The Postcard Store (<http://postcards.www.media.mit.edu/>)**

postcards/)

Another very interesting place, for CD-i, may be The Electric Postcard Store. You can go there and pick up a postcard you like (a picture). You can fill in a friends E-mail address and write two or three lines of text and send it. The one receiving has to go to the postcardstore and pick up your postcard by typing a number he get by e-mail. I think this might be interesting for CD-i because it uses the very popular principle of e-mail but there's no need to type that much of text. Among internet users it is a very popular place at the moment (see GNN hotlist). Another advantage CD-i has is that if the postcards are stored on disc this site can be used much faster, because of the great amount of pictures it is currently very slow.

**Interactive games ([Interesting for CD-i on the internet are the interactive games. I found Hangman, tic tac toe and the chess server on the internet. These games are very simple but the fun of it is that you are playing someone else on the internet, who can be anywhere in the world. The games on the net nowadays are not that nice to see and not that extensive but already very nice to do. In the picture an example of hangman.](http://www.cm.cf.ac.uk/htbin/RobH/Hangman?xfqwst[o|l])</a>)</b></div>
<div data-bbox=)**





#### CD-i Homepage (<http://www.acs.brockport.edu/CD-i/>)

Another important page to know of is the CD-i home page. It is made on a personal account in Brockport.

The other Philips pages are:

Philips Media (<http://www.media.philips.com>)

Philips semiconductors (<http://www.semiconductors.philips.com>)

Philips DAP (<http://www.dap.philips.com/>)

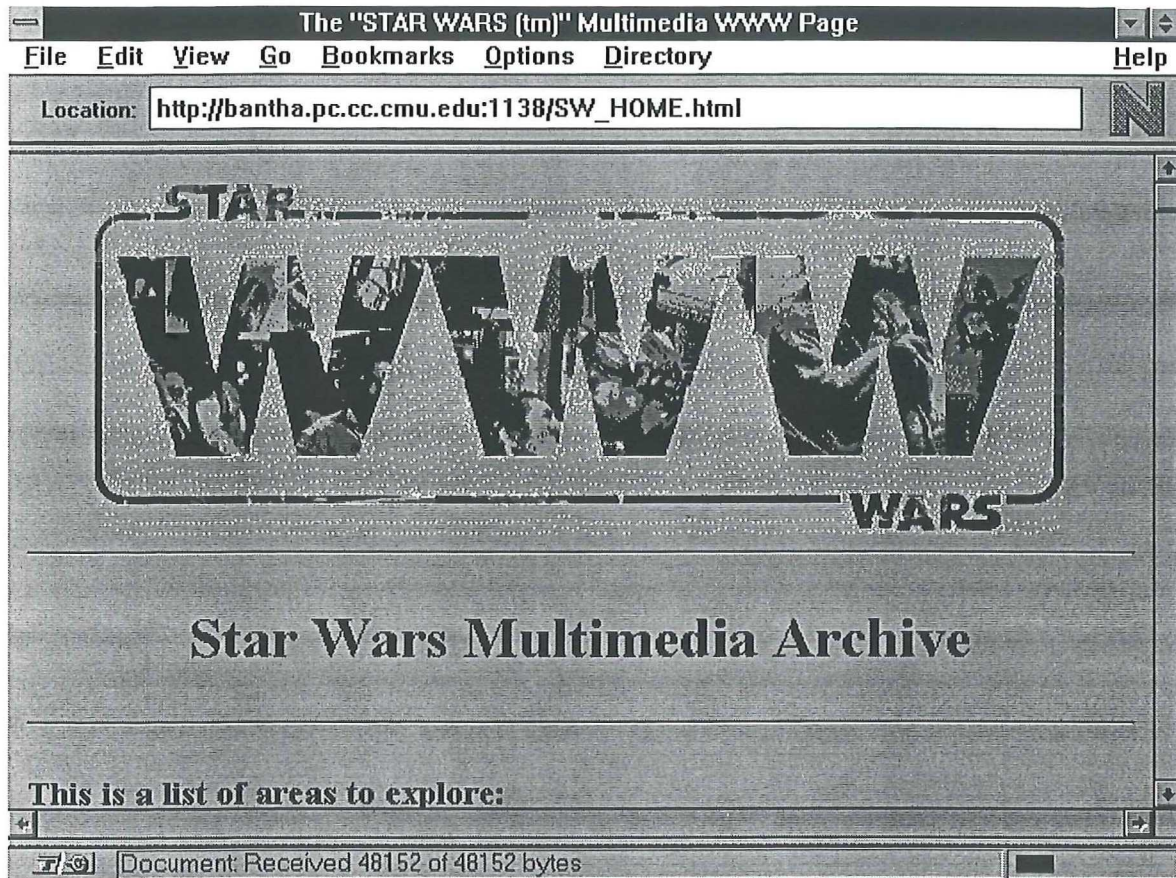
And no Philips homepage!

#### NOS teletekst

At the university of Eindhoven the server has a link to the NOS teletekst. It's always up to date. I don't think it is a good idea to put teletekst from internet to the television but maybe it is nice to develop a search function for teletekst on a CD-i.

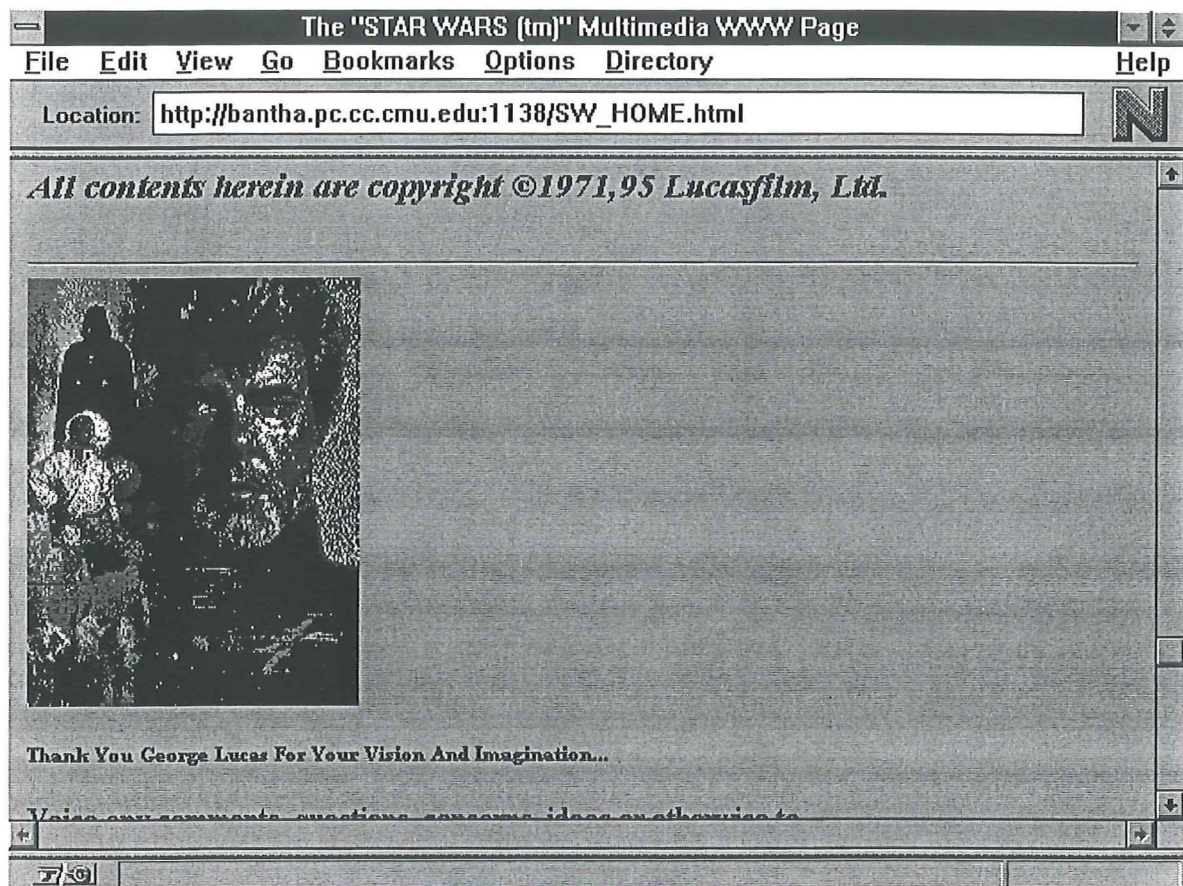
## Starwars

I describe this site not because it is particularly interesting for CD-i, but to show there are interesting sites with information and pictures on certain subjects. This one is on Starwars.



Beginning internet-users often think you can find all the information you want on the internet. Although it is true there is really a lot information there, it is not true you always find what you are looking for. Mostly the problem is you get much too much information. You can for example search with a keyword. You type this in a search application on the internet and you get over 2000 documents (try CD-i, for example) You have to learn searching through it. Between these documents there is a lot of garbidge. The speed of your modem is very important when you are searching.





## Navigation

I already mention the problem of finding something on the WWW. For this purpose there are navigation systems developed, part of them are on the internet itself, part of them are on paper.

On paper you can use the yellow pages of the internet, this is a book with about 800 pages with a lot internet URL's with a short description of the site. These sites are all in an index. There are already 2 yellow pages, one called the original and one for the year 1995. It's likely there will be one for 1996 etc.

You can also find the yellow pages on the internet.

### **Lycos**

One of the most popular navigators is Lycos. It is easy to find because you can click on the search button of netscape. One of the options there is Lycos. It works very simple you type the word you want to look for and you push the search-button. Lycos gives you in a minute a list with the sites related to the word you give in.

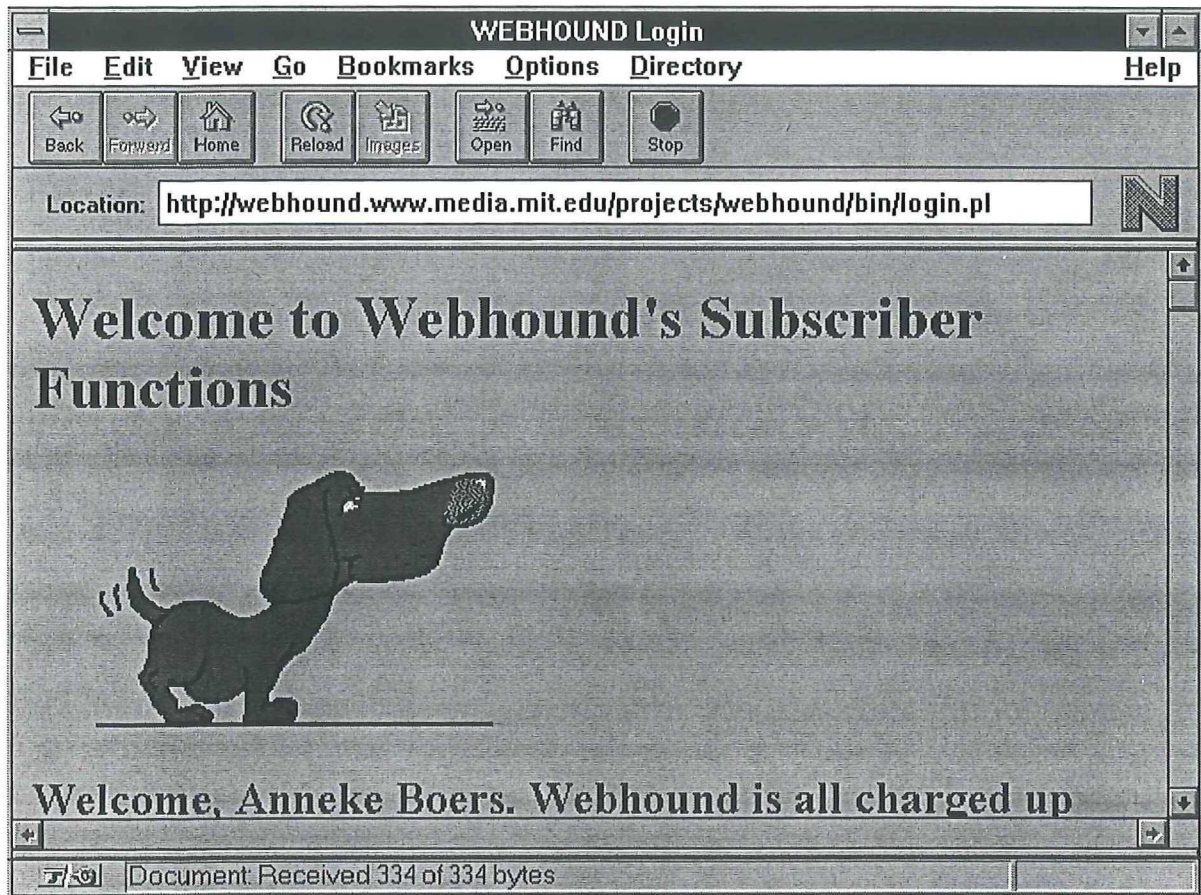
### **Yahoo**

The most popular navigation system is Yahoo. It is a menu structured navigation system. The strenght of Yahoo is that people read the documents and sort them. This way a lot of garbidge is already thrown out and ithe structure is more logical. This site is (as a lot of sites on the internet now) still experimental and therefore free, but it is a very useful tool on the internet and will be not suprising when they are going to ask money for searching after a while.

### **Webhound**

Another example is Webhound, this application works different. First you have to become a member by registering yourself. This site also does not cost anything jet but it is also experimental. In this application you can give up which sites you like or which one you don't like. After doing this the 'Webhound' is going to select other sites of your interest. You can look at these sites and again say if you like them or not. Finally he will give you only URL's that fits you most.





## Interviews with Internetusers

To learn a little bit more about how the internet is used nowadays I asked some frequent internetusers to answer some questions. Some interviews I did by e-mail, some talking. I questioned 4 men and one woman. 2 of them were real internet wiskits, the other men had not that much experience, although one of them has his own account for a while, the woman lives in Amsterdam and you can find her regularly in the digital city, she is already doing that for more then a year. They were all between the 23 year and the 29 year old.

Results of the interviews

**1. My first question was how much hours they spend on the internet every week.**

The beginning internet users where 2 or 3 hours connected

The experienced 7 hours a week

The DDS (Digital city Amsterdam) user was there 2 or 3 hours a week.

**2. Where do you use the internet for?**

from most used to less:

1. **E-mail** (They all do this most, it is not that suprising because it is generally kown the internet is used for E-mail the most)

2. **News** The two non-experienced are looking for new sites on the internet, one of the experienced also does, but for him it is work. Two experimental people are reading professional journals.

3. **Downloading software** The two experienced users are downlaoding software a lot.

4. **Newsgroups** The DDS user and one other experienced people read and wrote to newsgroups

5. **One experimental person has a service for students to find traineeships on the internet.**

6. **Solving computer problems** (On the internet there are a lot people willing you to help with interesting computer problems, you can ask in a newsgroup whether someone knows the answer to your problem) and getting pictures are also mentioned.

3. **Which browser do you use for the WWW?**

Four use Netscape

One use the software of the DDS

**What do you use for mail?**

Two did not know, one uses Nupop, one Eudora, one ELM or PINE

4. **What is most fun on the internet?**

One experimental person does not understand this question

E-mail (2 votes)

discovering new sites (1 vote)

One experimental has no opinion.

5. **Where do you get your URL's from?**

This was very different. Just clicking was mentioned, from friends, by e-mail from friends, guessing URL's, magazines and through the university site.

6. **Do you often go to the same place?**

1 not jet

1 yes for my service on the internet

1 TUDelft, Hotwired, CICA (for software)

1 TUDelft, my own page, DDS, MIT, Hotwired, Yahoo

1 DDS (not through WWW)

7. **What is your opinion about the hype of internet?**

Two main points are answered to this question: There is a lot of information but finding the right information is very difficult, and takes a lot of time.

The internet is something that will change a lot.

## Magazines

That internet has caused a hype can be seen by the big amount of magazines on internet. For this research I checked the magazine-stores several times and at least 5 different magazines were only on the internet (Netguide (English), Net (Dutch), Networld (Dutch), Wave (Dutch), .Net (Dutch)). There are also a lot magazines about everything what has to do with computers, I think about 50, for example PC-magazine, Mac world, PC games, PC world, Automatiseringsgids, Byte, PC-koop, PC-active, i-Magazine.

Another interesting thing about the magazines is that all kind of other magazines are paying attention to the internet. Magazines like the Business week, Elsevier write a lot of stuff about the net. But not only these magazines write about the internet, even the Cosmopolitan wrote about how exciting cybersex is. Also Donald Duck has adventures on the internet nowadays.

There is also a magazine, I suppose it is meant for teenagers, which is about art, culture, music and the internet.

I did not read all magazines I concentrated at the magazines completely about the internet. Most of them especially the Dutch ones were not that good. When reading these



magazines some things will strike you:

1. When reading these magazines well you will see not everything is true what they say.
2. The magazines have lay-outs very different from 'normal' magazines, there are a lot of big titles in very bright colours. The difference between advertisement and the text of the magazine is not clear, a lot of computer graphics and more things like that.
3. Most magazines are also available on the internet, for some reason I always buy the Wired (even before I came at Philips) while I easily can read it on the internet.
4. A lot of magazines have presents attached. Often Discs or CD-ROM's, but also little books or posters.
5. The price of the magazine, a lot of them are over twenty guilders. Although there are also cheaper ones.

One magazine I will recommend to everyone interested in internet, it's Wired. It's a big magazine, I think most people interested in internet read it.

Wired has als oan internet site (Hotwired), you can read there articles about the internet, what will be in the new Wired etc. You can also subscribe yourself to Hotflash there, it is a kind of internet magazin they send you by e-mail every week.

Another magazin is Mediametic, it is a magazin made by an originally graphic design company. Mediamatic organise together with the Dutch Design centre a big congress called Doors of Perception. This is very interesting to visit. If you want to know more about it go on the WWW to <http://mmwww.mediametic.nl/>

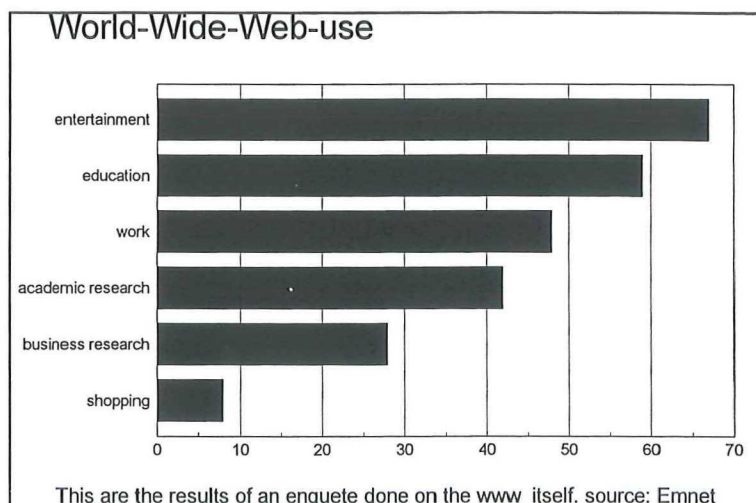
## What can Philips Media Systems do with internet?

To answer this question we should first answer the question: Should Philips Media Systems do something with the internet? Well after reading this report I hope you come to the same conclusion as I do: Yes, Philips Media Systems really should do something with the internet.

The internet has a lot of opportunities for Philips Media Systems to connect to, the internet is very popular and the internet is mostly used for amusement, just like CD-i. (see picture)

Another reason for

Philips Media Systems do something with the internet is to get experience. In my opinion the internet will become an important medium. For example the research done with internet connections on the television cable-network may be very interesting.



Enough reasons to start thinking about what Philips Media should do. To find the important issues for the new activity of Philips Media with the internet, there is made an SWOT matrix. The Strengths, Weaknesses, Opportunities and Threats are figured out during a session of Henk Belgers, Henk Speyer, Janus Keller and me. I made a matrix of them and combined the items. This way a rather complete overview was made of all aspects for a new activity. This matrix also led to a lot of ideas for new applications and products, especially the combination of the CD-i strengths with the internet changes was a very good one for that.

The method was used to structure the brainstorm a little, a SWOT-matrix is mostly used to combine environment factors (mostly competitors) with the own activities. In this SWOT the internet is seen as an environment aspect and the CD-i as the product of the company.

In the appendix you can find the complete filled in matrices, and the notes made during the sessions.

## Results

Issues:

- ◆ **The internet is not a game, it is a culture!**

Some people say the internet is an organism, it develops and it changes. It is growing very fast nowadays and the biggest part of the users are beginners. This will change, one day the growth will stop and the amount of beginners will decrease. What will happen with the culture then, and when this will happen nobody knows.

In this case we should learn from this issue, you cannot organize the internet, you can only react to it.

- ◆ **Just putting the internet on CD-i is no use. This has no profits above a PC.**

To convince people to access the internet with their CD-i player it has to have benefits above connecting with the computer. A good use of the static storage of the CD-i disc can make CD-i more attractive.

- ◆ **Reject slowness to use.**

The internet is slow. No matter what kind of connection you have, when it is busy you will have to wait for your information transfer. The best situation is when the user does not realize he is waiting for data transfer, but when this is not possible waiting should be made fun.

- ◆ **No storage is a problem for:**

- e-mail (no storage old messages)
- A&V downloading
- e-cash (electric cash has to be stored)
- not able to download the newest software
- pictures and movies (there are more and more on the internet)
- subscription to some activities (mailing lists)
- navigation tool
- bookmark store
- encryption for safety
- the browser has to support a lot (netscape, e-mail, mosaic, telnet, gopher)

(In the appendix you can find more issues these are the ones I think are important.)



## Product ideas:

- ◆ Communication between users is important (e-mail, postcards, newsgroups, chat). Some application for it should be on the product.
- ◆ Learning about the internet with examples and a helpdesk and learning how to behave is important to the beginning user.
- ◆ Games can connect several people to play with each other.
- ◆ Philips can become an internet provider for CD-i (geen inbepunt maar een provider die pagina's op het net heeft)
- ◆ Navigation application is necessary
- ◆ Easy to use newspapers on television is a chance.
- ◆ Because searching is difficult it is necessary to give the user to store some URL's he like (bookmarks in Netscape) this personifies his access to the internet, this has a lot of profits: You feel more familiar to the internet. You recognize places where you have been. The provider is able to know where the user is interested in and can give him suggestions or something (like Webhound), or advertisement.
- ◆ It is useful to have discs for different interest fields (Sports, Art, News). E-mail and browsing is that important it has to be on every disc or on the player (or modem).
- ◆ The product has to have a lot of Audio and Vision in the static storage.
- ◆ Accounts to a server combined with subscription, a magazine and a disc every month is a possibility
- ◆ The Variometric image can cause a problem. The internet culture is a very strict one. When you do not behave the other users will bomb you. It means they send you that much post you are downloading for hours, paying a lot telephone costs before you mailbox is empty again and you can do nothing about it. Because the storage of a CD-i player is very little, bombing is very easy and effective. The users of the internet CD-i has to learn netiquette.
- ◆ The internet is mostly used for amusement, CD-i fits well.
- ◆ The internet has little standards, the internet browsers follow each other up quick and are distributed very fast.
- ◆ Discs are old very soon
- ◆ Printing is not that necessary when storage is possible
- ◆ *idea*: Speech understanding possible for CD-i, instead of keyboard?
- ◆ The internet is slow, so waiting should be made nice on the static storage.
- ◆ *idea*: Children are a nice target group they are accepted immediately and don't have problem with the variometric image.

From this brainstorm I'm giving an idea for a product. Actually this is too soon to do that but there is for me now time left to have more sessions or to work out the sessions further more. So it is a big step to the next chapter.

## Product

In my opinion there are two kinds of products possible.

**1. A product which uses the internet as a way of contacting people.** The goal of the product is not to give the user access to the internet but just to use it as a tool. The product I have in mind is a game. The game can be played with a lot of people all connected to the internet (not only CD-i). The target group should be children. When reading the issues again we can say about them.

This first issue points out the game has to link up with the internet culture. So the game has to do this. During the development of the game there should be looked well at games who fit in this culture. for example: Myst, Doom and a new game called Bolo. This last one

is an interactive game on the internet now, only available with real fast computers. I've not seen enough of this game yet but maybe just putting this game on a disc (on CD-i it will be fast!) is a good thing to do.

The second issue is about the use of the static storage. With a game it is possible to put all the graphic material on the disc and only sending the position of the players and the score for example. You can store topscore lists at some server. Maybe it is nice to put an e-mail opportunity on the disc also so that the player can discuss a game after playing it, or make dates when to play.

the third issue is to reject slowness to use. The game should be structured this way that players do not have to wait till the other one has made his move. They should both be busy changing things in the game, while the computer is sending the data.

The fourth issue is about the lack of dynamic storage, wil CD-i is already used for games so I won't think it is a problem.

**2. The other product I think is possible is a Plug & Play internet disc.** This is a disc which contain several applications to access the internet. The physical product is a modem and a subscription to a monthly disc. An keyboard is not necessary immediately but can be bought later.

There is a big hype around it and a lot of people want to join it. So CD-i can be a cheap configuration to do it. Like one of the items says just putting the internet on CD-i has no use, there should be more. For this reason I think the storage of the CD-i disc should have the following applications:

1. A communication application (intergrated in the browser). From my research and also is it said a lot, The internet is the most used for e-mail. Also the people I interviewed liked it the most. E-mail like it is on the internet now is not possible without an keyboard. This problem can be solved by putting an application on the disc for sending postcards (like the postcard store on the internet see the chapter over interesting sites).

2. A newspaper. The New York times has been on the internet for a while, there are a lot of local newspapers on the internet now. I think there has to be an application on the disc who has a user interface for reading articles. A newspaper of internet can be connected and the user can read it easily. It should be necessary to have a kind of arrangement with a certain newspaper.

3. Browser. On the disc should be an internet browser. These internet browser should be changed often because it has to be able to read all pages of the internet and on the internet the browsers are changing a lot and pages are always made for the newest browser (see chapter over browsers).

4. Digital city. All this should be positioned in a metafor for a place. An digital city is an example. The internet is always thought of as a place to be. For example the e-mail application should be started when entering the post office, a chat application start when you are entering the cafe. A very good example is the digital city of Amsterdam. A good point of the metafor of a place is that people get used to it and feel comfortable. In the normal internet you get lost often.

5. Navigation. To use the browser an navigation application is necessary. On the internet now are rather good navigation applications, one of them should be used.



6. An application which shows you where you have been on the world. This will work like the bookmarks of netscape but it is a map which shows with a line the path you have gone. By clicking on the places you can go there.

7. An learning about the internet application.

The benefits of this disc are the price, the plug and play aspect and the nice application on the disc. I have no idea about the static storage these application costs but maybe the both products described can be intergrated in one.