WHAT WE TALK ABOUT WHEN WE TALK ABOUT THE INTERNET

AN OVERVIEW

ID/UM Thesis

Karina Pálosi
info@karinapalosi.com

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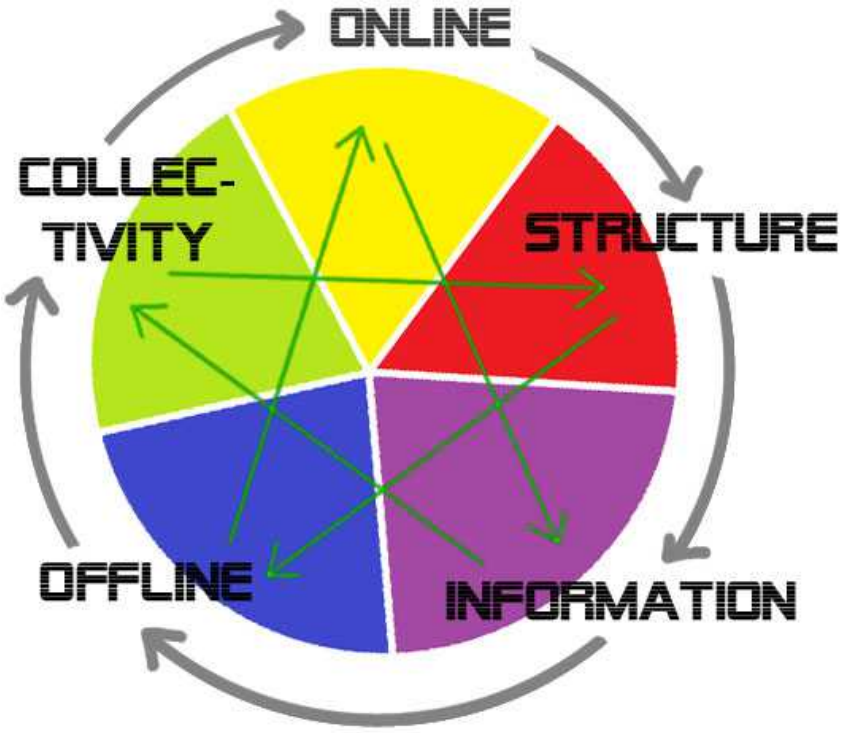
It's a daily battle...

0 Introduction

When I wake up in the morning, I usually find myself staring at the screen of my laptop. On better days accompanied by a cup of coffee. I live such a great part of my life online, or mediated by the computer, that it has become my habitat, a world I have invested in, I have come to know intimately, one I have furnished. I can't help but to wonder what this thing is that I have such an intense relationship with, and how this has come about in little over 15 years.

In ages gone by one would discover the world by sailing across oceans, and then return with samples of strange plants and animals. We have also travelled within, meditated and discovered the inner planes. Now there is a world we have built just across the screen – and I would like to map this new terrain. For this I have noted down everything that comes up, when we talk about the internet, and I have collected all topics I could find. It turns out that everything is related to everything, and treads of discussions, thoughts can be continued in several directions.

To make sense out of the different layers, topics and areas, I arranged all information into 5 major topics and connected them to each other. This structure allows an overview, and it can still be counted on one hand. The classical five-point setup is an old diagram, but in is adequate here for my purpose and allows not only to see the different topics, but also to reflect on the connections between them:



The multitude of these topics and this arrangement resulted in a flux of viewpoints, opinions, and theories. I intentionally tried to find the contradictions, all the different sides and angles possible, the variety of the views that exist – ranging from the theories that technology will save us to the fear that we will become empty headed and disoriented in a few generations, from the telepathic union of mankind to the zombie apocalypse. The thesis serves as an overview and a reality check.

For every morning I wake up by the side of the Internet, share my life with it, and I firmly believe that this online world is the most exiting of them all and it's worth being discovered, named and taken care of. At the same time, I wouldn't take the Internet at interface value.

So what is it then? To borrow from Cory Doctorow, "we regard and regulate the Internet as if it was a glorified movie on demand service, or jihadi recruiting systems, or porn distribution, and not as nervous systems for the 21st century. It is the system through which everything we do today goes, and which will be required by everything we will do tomorrow".

Generations are growing up now who take the internet for granted and approach it without any critical thoughts. Of course, its one big festival of shiny bits of information – but it's so much more, and not all of it is shiny, by far. The Internet is here to stay and to be educated on it seems to me to be of extreme importance.

We will need to be able to make educated decisions when decisions will have to be made. I think it is wise to be savvy about our internet-enabled the world, to know as far as possible, what the machine does, how it controls us, how we control it, who owns what, and what happens if I put out all my data out there,

where does it go?

I tried to look through the whole of the Internet, but it is an expanding universe. Any topic I picked, went on endlessly, connected to other topics and brought out new questions. Many new questions. I found lively debates and more layers than I would have imagined, so I try to organize all that it into a representative catalogue and chart it as a map. I know, the plural of anecdote is not data, but when I googled this particular phrase, it turned out, that it's a very good example on how opinions diverge. 81.300 hits say indeed, anecdotes don't amount to data. Only 4.710 hits state that anecdotes are data - amongst them Raymond Wolfinger, the person from whom the quote originates. Which side to choose?

Wolfinger, political scientist from Berkeley, wrote in an email from 2004 to Fred Shapiro, editor of the Yale Dictionary of Quotations the following: "I said 'The plural of anecdote is data' some time in the 1969-70 academic year while teaching a graduate seminar at Stanford. The occasion was a student's dismissal of a simple factual statement -- by another student or me -- as a mere anecdote. The quotation was my rejoinder. Since then I have missed few opportunities to quote myself. The only appearance in print that I can remember is Nelson Polsby's accurate quotation and attribution in an article in PS: Political Science and Politics in 1993; I believe it was in the first issue of the year."[1]

So what is solid in this fluid, ever changing deluge of information washing daily over us?

I intend this booklet as a general overview for me and the reader, from the advanced user to the noob, for digital natives and immigrants alike. I would like to have a good look at this medium before it becomes so natural to us that we no longer stop to look at it, before it simply becomes invisible to us. I believe that loosing such an important technology out of our sight might land us in a precarious position of not knowing how our world works, returning us to a naive state of being, when the world was explained by superstition, hearsay and magic. Technology is being developed at an ever increasing pace around us, so much so that the process has turned around. Oftentimes something is invented which we don't know how to apply yet. There is no testing phase and inventions can have unexpected consequences. But even before that settles, new inventions pop up at a pace we can't even follow. And even so, we get used to things very fast. Scarigly fast. When did you last wonder how a plane stays up in the air? Or how electricity works? How a mobile phone works? All these things

1 http://blog.revolutionanalytics.com/2011/04/the-plural-of-anecdote-is-data-after-all.html

took just a few generations to go from spectacular and inexplicable to commonplace. It is still inexplicable, because most of us have no idea how stuff works, but we accept it because it works[2]. This is how things are.

However, it was not so long ago that we were reading books, writing letters and gossiping one on one. Back then, if people were not there, they were simply not available. I remember being fond of the library, walking down the aisles between the shelves, and not finding the book I needed for my exam, because there were only limited number of copies, and my fellow students also studied on the last days, so I went up to them, arranging to borrow the book for a few hours, if I could.

In my first year at the university I was introduced to the computer room. I remember not understanding why you would read anything on a screen when you had libraries, so why would you sit in front of a screen, when you can sit with a book, which is much more mobile. This was in 1999 in Hungary, where I studied. How little did I know. I liked the idea of email though, because posting a letter to my friends abroad and waiting a week or two for a reply was very inconvenient. Now I could just type it up, press send, done. I kept writing drafts in the beginning, and crafted every letter over the course of a few days, but soon enough we all became comfortable with the medium and sent ever shorter but more and more frequent snippets of information, we started to "stream" messages more easily.

Then it freaking exploded all over the place. Browsing, emailing, chatting, downloading, copy paste, copy paste, copy paste, cut, cut, find, search visually similar image, posting, uploading, streaming, get torrent, adjust code, save, like.

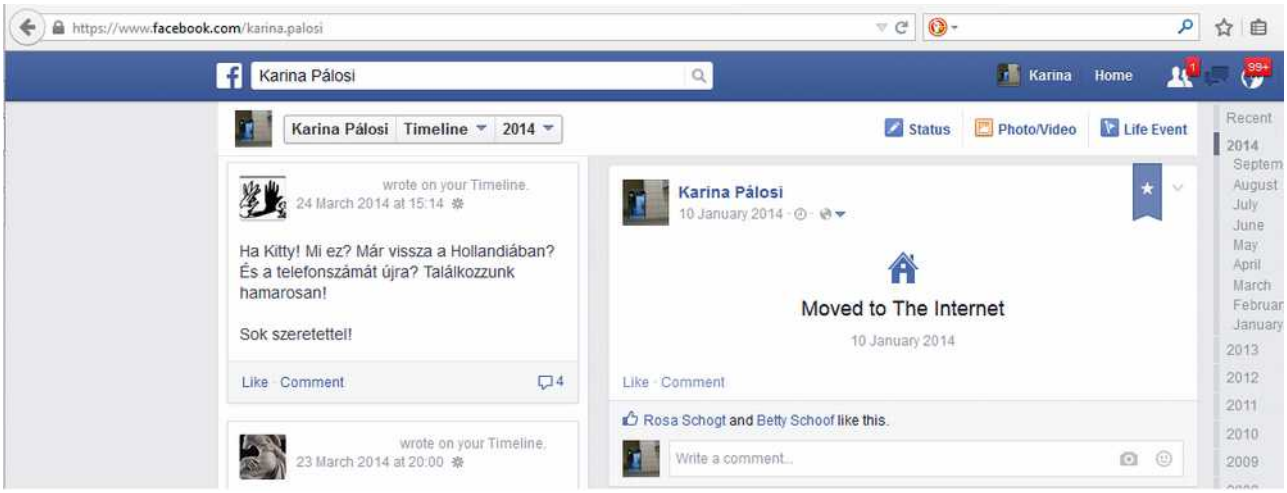
In the second year at the university, still in Hungary, I would write my paper with the hand, then type it up on a computer and save it to a floppy disk, print it in the computer room (where you always had to wait in line), and hand it in.

In the fifth year (2004), I emailed my papers to the teachers. First we learned that you can adjust letter size and the space between the lines to stretch the volume of the text up to the required amount of pages, and then the teachers learned that there is a function called word count. By the end of my studies we could sign up for classes online, and didn't have to be physically present to fight over the A4 to sign up. For the survival of the

2 There is a brilliant formulation of how our relationship to technology works by Douglas Adams:
"Anything that is in the world when you're born is normal and ordinary and is just a natural part of the way the world works. Anything that's invented between when you're fifteen and thirty-five is new and exciting and revolutionary and you can probably get a career in it. Anything invented after you're thirty-five is against the natural order of things."

fittest now new tools were required, so by the time I graduated, I had a laptop, two email accounts, several USB sticks, a CD player, and a mobile phone that could vibrate. I was all geared up and good to go.

Eight years later I officially announced on Facebook: I have moved online.



By now it's 2015 and I have seen many tens of thousands of websites, films, and blogs on a very wide range – from the sublime to what I cannot describe here and which I didn't intend to see, believe me. This all gave me a wider notion on the human conscious and subconscious mind than any library could ever have. A picture of what we think, want, fantasize about, how we behave when we think no one is watching. I read comments that are certainly not uttered in real life face to face. But on the internet people will tell you what they think, what they believe and wish for, and not only will they tell you, but push it into your face, richly illustrated. This culture is wide and its folklore is endless[3].

I used to read a lot, fiction, non-fiction, anything and everything. I am fascinated by humans, what we do, how we are, and how the world works that we inhabit. Now where books gave me a good idea of who we are, the internet is books on acid. As Mark Twain said, truth is stranger than fiction, and that's because Fiction is obliged to stick to possibilities; Truth isn't. And we certainly don't. We are unbelievable. Both in a good and in the bad sense.

For me, and for 40% of the world population, the internet is something to be taken for granted. This is how things are now, this is how it will be. The browser is a given. Someone or rather many invented all these software, which is by now not software, but tradition. I don't question why there are shops, fire

3 http://www.youtube.com/watch?v=R0RNkkd2peE How is Slender Man Internet Folklore? | Idea Channel | PBS Digital Studios

brigades, taxes, jurisdiction, nor do I ask why there is YouTube and Google and if it would be possible to have a different type of browser from the ones we have. I don't ask if anything outside Google exists. It makes society function, it fulfills my needs, and it is how it is.

Therefore I was very surprised to find, when I started researching "the Internet" about a year ago, that e.g. browsers could look different. That there are many alternatives, and many options to how you can retrieve information. That Google is actually a privately owned company who know everything I have ever searched for.

I was surprised to understand that there is more to it than what meets the eye – and there is certainly a lot that meets the eye. I started to inventarize: **What do we talk about when we talk about the Internet?**

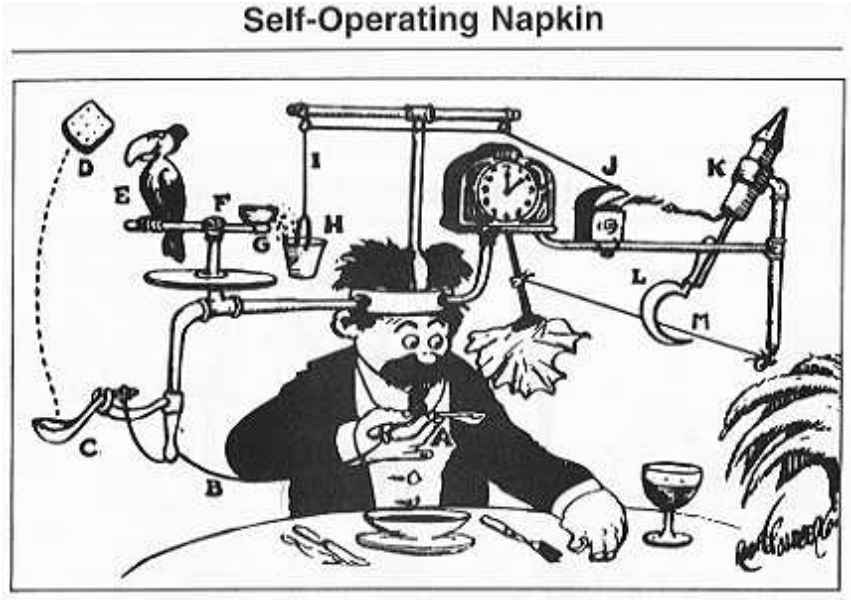
Because I write this thesis for an art academy, one more question should be asked: **How does the internet concern me as an artist?** Well, I see the internet as the context in which I want to operate my artist practice in the future. For me it as an extension of humanity and my fascination with human kind – and especially the relationships and artefacts produced by the human mind drives me to explore this field, to try to understand and get a grip on it. I expect that over the years this technology will grow into even more corners our lives, intertwine inextricably, and I would like to find a way to deal with it, and I would like to deal with it consciously. Since I haven't found a work that is a holistic overview of all the topics, I felt compelled to write it, and now here it is. I hope it is as enjoyable to read as it was for me to write.

1 is Online

It all started with the first stone that was picked up by some far ancestors to throw it at the animals they wanted to eat. Then we started to manipulate the world around us, realizing that rocks can be sharpened, and then animals can be skinned with it, that it can have a handle, and that we can also plough the earth with it. While at it, we can delve deep to the earth to extract the materials from which we now, several years later, have built an objects like mobile phones, or the raspberry pi, which is the same size as those first stones, only it has more functionalities than there were functionalities, say, a couple of hundred years ago.

This tool we call the "computer" does so many things for us – amongst them making phone calls, driving car, regulating the temperature of our home, regulating our economy. These devices are getting linked up to each other in an infrastructure we built in the process, an infrastructure, we call the internet. This infrastructure is today involved in everything we do and will be required for everything tomorrow[4]. It is a significant part of our everyday reality.

Devices also do many things *to* us. We live in a symbiosis with our tools, with technology in general. We improve our machines to calculate more and more for us, we invent new ways to help ourselves. The idea of the universal machines has been explored by many, by scientists, science-fiction writers to the cartoonists.



Cartoon by Rube Gouldberg.

We use our tools to extend our physical abilities – to look further, to hear more, to go faster and to go higher. As our brain developed, we needed tools to service our mental abilities as

4 From Wikipedia: Cory Efram Doctorow (born July 17, 1971) is a Canadian-British blogger, journalist, and science fiction author who serves as co-editor of the blog Boing Boing. He is an activist in favour of liberalising copyright laws and a proponent of the Creative Commons organization, using some of their licenses for his books. Some common themes of his work include digital rights management, file sharing, and post-scarcity economics.

well. Writing was the technology, just like the internet, that is the extension and the amplification of our mental selves, and it had a huge impact on our species. Literacy changed our brain, social structures, it allowed us to communicate with each other across time and space, so we could organize ourselves into bigger clusters than a family and we could cooperate and build societies.

Famously the great Greek philosopher Socrates was very much against writing, because he feared it would erode our memory, that we would no longer think for ourselves, but rely on hearsay, and we would never learn anything ever again[5]. We know now that the invention of writing did change our societies fundamentally but it didn't turn out that bad after all. Had writing proven to be a passing fad, we would probably not have known that what Socrates said, since all his teachings were preserved in the books of his disciple, Plato.

But writing took off, and how! Actually quite slowly at first but when it reached a tipping point, and suddenly everyone was reading, which made us develop new skills. Such as abstract, logical thinking. As James Gleick writes in his book Information (2011) about illiterate people:

> They could not, or would not, accept logical syllogisms.
> A typical question:
>
> In the Far North, where there is snow, all bears are white.
> Novaya Zembla is in the Far North and there is always snow there.
> What color are the bears?
>
> Typical response: "I don't know. I've seen a black bear. I've never seen any others... Each location has its own animals."
>
> By contrast, a man who has just learned to read and write responds, "To go by your words, they should all be white." To go by your words – in that phrase a level is crossed. The information has been detached

5 From Phaedrus: ...this discovery of yours will create forgetfulness in the learners' souls, because they will not use their memories; they will trust to the external written characters and not remember of themselves. The specific which you have discovered is an aid not to memory, but to reminiscence, and you give your disciples not truth, but only the semblance of truth; they will be hearers of many things and will have learned nothing; they will appear to be omniscient and will generally know nothing; they will be tiresome company, having the show of wisdom without the reality.
(...)
...writing is unfortunately like painting; for the creations of the painter have the attitude of life, and yet if you ask them a question they preserve a solemn silence. And the same may be said of speeches. You would imagine that they had intelligence, but if you want to know anything and put a question to one of them the speakers always gives one unvarying answer. And when they have been once written down they are tumbled about anywhere among those who may or may not understand them, and know not to whom they should reply, to whom not: and if they are maltreated or abused they have no parent to protect them; and they cannot protect or defend themselves.

> from any person, detached from the speaker's experience. Now it lives in the words, little life-support modules. Spoken words also transport information, but not with the self-consciousness that writing brings. Literate people take for granted their own awareness of words, along with the array of word-related machinery: classification, reference, definition. Before literacy, there is nothing obvious about such techniques. "Try to explain to me what a tree is," Luria says, and the peasant replies, "Why should I? Everyone knows what a tree is, they don't need me telling them."

And with the introduction of the internet, another level of abstraction is crossed. The internet is not a multi-channeled multi-media book. I would argue we have a new world, a new layer on top of our everyday experiences, where we manipulate abstract concepts in an abstract way. It is a mental space, we only access it via a screen of some sorts and the output is mostly (audio)visual. It is gaining a more tactile dimension due to touchpads, touchscreens, wii, Leap, kinect and other technologies, haptic feedback, and more and more senses are engaged when interacting with this online world. It elicits emotions just as anything offline does, and to live in this new world, we create online identities. Multiple identities even. We have a Facebook self, one for in games, on fora, on photo sharing websites, for dating sites, on LinkedIn and the list goes on.

More and more things only exist on the internet: these profiles, experiences that happen through and by the internet. It is a more abstract world. A video which we can watch online for example is nowhere and anywhere. It's "original" can be traced to server of YouTube, or the hard drive of the creator, but all renderings, viewing or streaming of the video *is* the original. It is as Bill Thompson, technology writer would say, "a digital simulacrum of something that has no original". It is only an set of instructions that the file contains.

In the meanwhile most people only realize that they are using the internet when they're Googleing something or shopping online, or not even then. The internet has grown into all corners of our daily lives. We use it when we make a call, watch tv, fly on an airplane. New types of cars, fridges are connected to the internet, in the office everyone works online, the food we buy in the supermarket is managed online, the stock markets are online. Almost everything has some online presence.

And this goes so fast that we can't trace anymore how systems work. For example, the stock markets are mostly controlled by algorithms. The general public has of course no access to how it works, and only a very limited amount of people would understand, and even they are not quite sure, and even fewer can predict what algorithms do. But they control to a large extent the fate of the world economy, our pension depends on them, stronger still, if it

spirals out of hand, western civilization as we know it could be obliterated. But in general technology seems to work and machines certainly do make our lives so much easier and comfortable.

So shall we give in to technojoy or succumb to technofear? What is coming? The Orwellian vision or the Brave New World? Or is it already here or worse? Should we update our nightmares? Shall we put our faith in solutionism, that technology will save us and if we live long enough, we can live forever[6]?

That choice is probably up to the individual, we can each choose how to feel about it, but the truth is that the coming generations don't have any option but to deal with it. Just as we inherited roads, the telephone, electricity, and the climate change, they *have* the internet, whether they want it or not. The only problem is that it's a complex and uncharted place and the we all enter unprepared into the digital great wide open where the scammer, the marketeers and the aberrated roam, and we figure out on the go how to deal with it all – only the young are much more vulnerable. They don't know that there are other options, like libraries, landlines, faxes, street phones, handwriting, printed encyclopaedia – and increasingly other alternatives are disappearing. They don't know that there is no such thing as free. And just because it feels good, it should be consumed in large quantities. We know what too much sugar does, we know what too much television does – but what does too many cat videos, or too much porn, too many video games, or too much social media do?

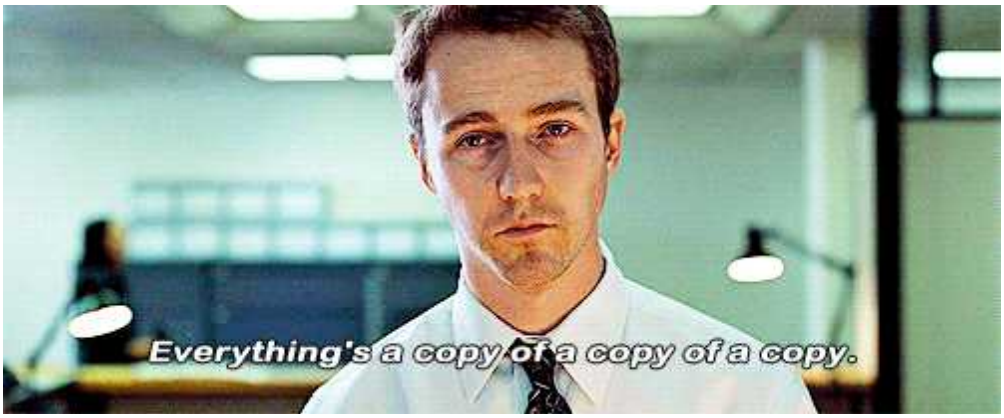
The Landscape of the Internet

I will start off with some statement. From all the research for this thesis, I can formulate the following statements that I found over and over again, formulated in various forms. Some of them contradict each other, but it outlines a territory which we are going to look at in more detail in the following chapters:

- The internet is here to stay and it will restructure everything. Similar to books, clocks, electricity, and maps, it has altered our perception of reality, it would be impossible to do away with it, we couldn't run our lives and society without it, but just like these inventions have, the internet will also transform our society.
- The internet is one thing. It is a network of computer networks and it's all linked up. We are in a global village, interlinked and more and more aware of this interconnectedness. You can access the whole from any entry point.

6 Ray Kurzweil, American author, computer scientist, inventor, futurist, and is a director of engineering at Google – amongs many – is promoting the idea, that if we live long enough, we can live forever. More and more of the human body can be repaired, with supplements health is balanced, nanotechnology, robotics, and biotechnology have an optimistic view on the transhumanistic future.

- On the internet everything is a representation – an image of something, a text about something, videos shot offline, then uploaded online. It is a copy of a copy of a copy[7].
- More and more things are "real" on the internet, and exist only there. What we see online is the thing itself, it is not a representation of anything else. A meme is born on the internet and lives there. A (social network) profile ís part of your identity, a tweet is as real as a postcard, a like is as real as a spoken compliment, if not more so.
- The future of the information age will be dominated by unintended consequences.

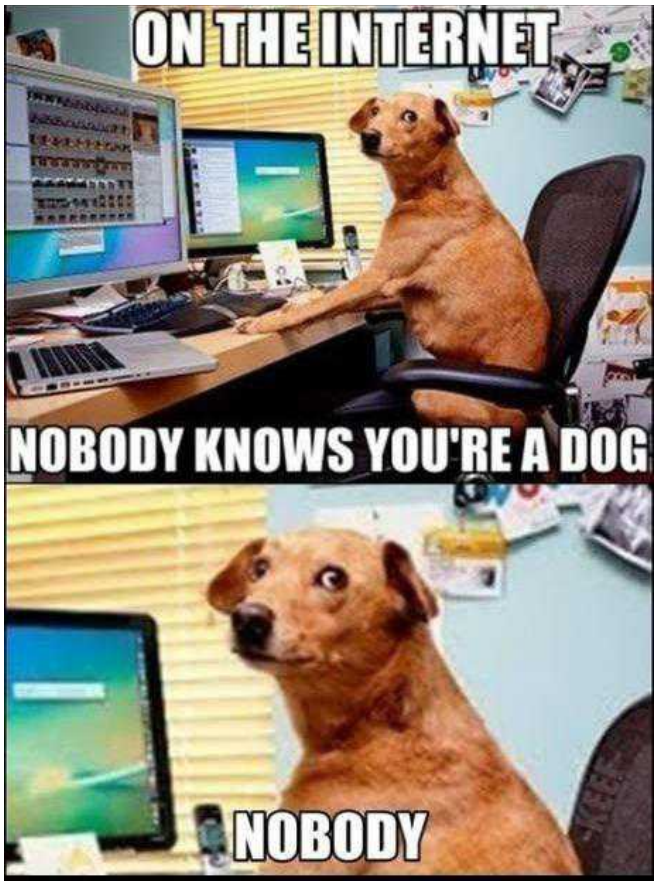


- The internet is nevertheless a different place, a mental space, it has no gravity, no time, no sizes, no limits. There are different rules, time and space have a different role. There are strictly speaking only 2 dimensions, it's a flat screen, most websites are based on printed media. This is slowly evolving, things are not that linear anymore.
- The internet is changing constantly and rapidly, and expanding. My search results today differ from that of tomorrow, and every day there are more results returned. Links get broken, pages disappear, pages become popular or forgotten. But all that is replaced by more – more new fora, new blogs, new ideas.
- The internet is alienating us. We have never been so lonely as now, in the age of social networks.
- The internet came into being because we wanted to connect. The main reason that all these networks were embraced – by the scientists and then the public, is email. And now we share on an so far never seen level.
- The internet is diverse, for every argument I can find an counter-argument. There are many versions of the same. If for example three different people search for the image of David by Michelangelo, they will probably get three different photo's of the same sculpture, depending on search terms, their browser history, settings, etc.
- There is no one truth. As Nietzsche said in his notebooks (Summer 1886 – Fall 1887), there are no facts, only

7 Image from the film Fight Club

interpretations. This would certainly be true online. 3 billion people have 3 billion frames of reference, 3 billion different viewpoints. One can find their beliefs reinforced online, but if you click on the wrong button, your certainty might get nuanced or refuted.

- It is a public space, where we think we are anonymous, where we should have the option to be anonymous, but in the end everyone can be and is more or less tracked down.
- It's a mental space but our bodies don't know that, so we can get caught up in it. Gaming, and other online experiences certainly have an impact, they are very immersive. As a matter of fact, sitting hours in front of a screen does something to our body as well, e.g. causes myopia and back pain.
- Internet can serve as a shield, as escapism, there is a certain detachment from the physical reality when online. You can sculpt your identity, you can pretend, try out a persona, live out good and bad emotions. On the internet nobody knows you are a dog.



It is advisable to stay critical online, inform yourself from multiple sources, and then decide for yourself – online just as much as one would do that offline. A radical change is going on from the normative society we used to live in, where there were “correct” answers, correct behaviours, and we are shifting to the information age, where everything is liquid, where new inventions are made every day, where scientific discoveries, new information and the myriad of opinions chip away the possibility of any absolute truth. The scale of the change, or as Brad Troemel says in his book Peer Pressure (2011), the migration of a generation has made our generation cynical. We have to deal with just a great a transition from offline to online as previous generations, when they moved from the village into the city.

The online world is overwhelming in a certain sense, it slurps up our attention and leaves us with an overdose of information which can be as confusing as a zombie apocalypse. We have created an environment which is awesome in every sense of the word, but it also creates a certain amount of anxiety which can be well

described with the image of the monster of dr Frankenstein: it's alive, and it wants things and we are not sure how it will play out, what the consequences of this creation are going to be.

The internet is also a platform for creativity, we have the tool and mentality to take things further, remix, hack it, adapt it, do something with it. The least we do is to 'like' it or 'share' it. It's read-write again. Sharing is the main thing and it's taking it forward.

That is the exact difference in the story between the alchemists and the scientists. While alchemists would be obviously secretive about how to make gold, they had to learn on their own account that mercury is not a good material to be in close contact with for longer periods of time, whereas scientists would share their knowledge – and advance more easily. The more information was exchanged the easier it was to not to reinvent the wheel and build on the conclusions others have drawn, to improve measurements, build new experiments.

1 to 3 – from Online to Information

The biggest part of the web is user generated content (UGC[8]) and 3 billion people are online. The numbers are only growing exponentially. The number of photos uploaded to Facebook has gone up to 300 million a day – since 2004 when it was founded. So how does all this content contribute to the online world? Well, they create each other. We browse through all the information - and by linking it, mixing it, remixing it, reworking it, we inhabit and create this world. Browsing, surfing is how we get ahead, and we knead the information into knowledge. Orientating oneself however works differently in the virtual space than what we are use to: we start remembering the path to information, the search terms, the site names, and not the actual pieces of information. We know that for most things it's enough to find the relevant entry on Wikipedia and that if the search term "keyboard cat", it will link to a particular video. It is more of a stream of information and not a static library.

We, ourselves also become part of the data. There is a saying that if you are not paying for a product, you are the product. The information we generate by clicking, liking, linking, viewing, sharing, is valuable marketing information which is bought and sold online.

We also become part of the online. The trends influence our daily decisions, the online thinking influences our thinking, it is getting into our heads, and we start think along the lines of "if, else, then". What happens online, doesn't stay online anymore.

8 From Wikipedia: User Generated Content is any form of content such as blogs, wikis, discussion forums, posts, chats, tweets, podcasting, pins, digital images, video, audio files, and other forms of media that was created by users of an online system or service, often made available via social media websites

There be dragons

The Online world is built for a great extent from the available – and mostly user generated - content. But that can have very unexpected consequences. An article in the Guardian[9] (and plenty others) describes the story of an American social worker, Lindsey Stone. She was good at her job, everyone was happy with her. The only thing is that she had a running joke with her colleagues: taking silly pictures of pretending to break the rules, like posing as if they would be smoking in front of a no smoking sign. It was just for them, and just for fun until in the Arlington Cemetery they saw the Silence and Respect sign so of course they would made the following picture:

and because they thought it was hilarious, her colleague posted it on Facebook. This photo wasn't a hit with friends, but sure, there are different kinds of funny. The Facebook account however wasn't private, they weren't even very aware of which box should be ticked, or how and why it wasn't ticked anymore, or was it ever...? Anyhow the image went out into the wide open and they started to get messages: "Lindsey Stone hates the military and hates soldiers who have died in foreign wars", "You should rot in hell", "Just pure Evil", "Spoke with an employee from Life who has told me there are veterans on the board and that she will be fired. Awaiting info on her accomplice", "After they fire her, maybe she needs to sign up as a client. Woman needs help", "Send the dumb feminist to prison". There were death and rape threats.

She was indeed fired and for the next year she would live in fear. She would hardly leave the house, didn't dare to date anyone and when applying for a job, she didn't dare to mention the

9 http://www.theguardian.com/technology/2015/feb/21/internet-shaming-lindsey-stone-jon-ronson?CMP=fb_gu

incident. That photo defined her whole person.

Her case is not a stand-off occurrence. Everyone is misrepresented on the Internet to some extent for the better or the worse. The super stars are not that divine and the Instagram gallery of someone is not necessarily representative of how they feel on a rainy Thursday morning. But sometimes how you are seen on the internet can be really really really disadvantageous – as Lindsey's example demonstrates. The writer of the article goes on to narrate that she met Michael Fertic in Menlo Park, Silicon Valley, who runs a digital reputation management company, reputation.com. These companies "game" Google into hiding negative stories stored online. So this is now also something that exists.

Michael's strategists had been researching Lindsey's online life and had discovered nothing about her besides that "Silence and Respect" incident. Those five seconds of her life is her entire internet presence. And that picture doesn't only impact this Lindsey Stone. Anyone who has that name has the same problem. There are 60 Lindsey Stones in the US and they're all being defined by that one photograph.

Their plan to save her reputation is actually quite simple: "create Lindsey Stone Tumblrs and LinkedIn pages and WordPress blogs and Instagram accounts and YouTube accounts to overwhelm that terrible photograph, wash it away in a tidal wave of positivity, away to a place on Google where normal people don't look: a place like page two of the search results. According to Google's own research, 53% of us don't go beyond the first two search results, and 89% of us don't look past the first page."

Well, as they say, the best place to hide a dead body is page two of the Google search results. Lindsey won't be forgotten by the internet, but the incident can be eased into oblivion, and put out of focus by using the very same channels that got her into the focus in the first place.

Sounds like an easy solution but public shaming goes deeply into private lives. There is nothing virtual about it. Let us consider the first person who was confronted with the devastating powers of the internet: Monica Lewinsky[10]. She was 22 when she as an intern fell in love with her boss. Not a good thing to do, but it happens. Unfortunately, as we know, her boss was the President of the United States, and the scandal came at just the right time to bog the President down while investors were getting their money out of South-East Asia[11]. That was bad news for Monica, because she became the focus point for the attention of the world and there were strong interests to keep her there for as long as possible.

Her scandal was the first to go over the internet – which meant that all information was full time accessible, everyone and anyone could vent their opinion, and throw infinite amount of virtual stones. She became overnight a publicly humiliated figure from a private person, she was personally attacked in front of the whole world. Before the internet your mistakes would be known and commented upon by your community but now community has become

10 http://www.ted.com/talks/monica_lewinsky_the_price_of_shame# Monica Lewinsky: The price of shame, TED talk

11 All watched over by machines of loving grace, documentary by Adam Curtis

global. The digital shaming it is amplified, unconstrained and permanently accessible.

Her phone conversations were tapped and recorded, which afterwards, when the scandal broke, became recontextualized and excruciatingly humiliating when aired to the public, and she has disappeared from the public eye for over 17 years.

Since 1998 public shaming and cyber bullying has mushroomed. Childline in the UK released that bullying related calls and emails have gone up 87% between 2012 and 2013. Meta-analysis from the Netherlands shows that cyber bullying is for the first time more likely to drive a child to suicidal thoughts than offline bullying. So the internet might be here to connect us, but when an individual is singled out to be isolated and shamed, because shame isolates, it comes with a crushing force, with the amplified force of a global community that leaves nowhere to hide. And this is also something we should be aware of, and deal with: to keep up the connectedness, we need to keep sympathizing with eachother and have compassion for people we encounter online.

1 => 2 How Online Gives Rise to Structure

With the collectivity online of course an economy emerges. The internet is also a commercial undertaking. The servers, the hosting, the wires, the tubes, the web designers, to name a few of its parts, all need to be paid for. There is a monetary economy and an attention economy that arises out of the structure of what is happening online, and the two are mostly interchangeable. The advertisers on internet want to find eyeballs, people seeing their ads, they lure you to click on it, to buy products – or to leave more information about yourself behind so next time around they know how to sell you a product. Every move we make online is documented and translated into data which is then again translated into customer behaviour. We become commodities, our likes are translated to numbers, personal preferences and relations turn into trends and big data.

Money is one of the organising forces of the online infrastructure, and it is in turn helped by our demands. We want new platforms, applications, ways to connect and to share, to entertain us and to learn. And this fervent search for ever new applications is fuelled by the demand of all of us who live online and believe that this progress is taking us further. The sharing enables us to go faster. We all stand on the shoulder of giants, as Sir Isaac Newton quoted Bernard of Chartres. Now however the mindset seems to be changing, we share and we want to improve. Whether it's a game, a recipe, a software, we think how it could be better, and when we share, we also say "look, this is what I have done, you go take it further"[12], as Alexis Ohanian, the co-founder of reddit puts it.

Sharing has become a standard. We expect that everything that

12 http://www.bbc.com/future/story/20141023-surprising-way-to-get-rich-online

is online, can be downloaded, can be accessed on demand. Sharing has its history by now. It started with the early scientists who shared discoveries and the printing press that facilitated the spread of information but now new structures arise so we are able to connect and to share. And this urge is generating more and more interlinks and possibilities, the development of innovation, apps, devices, platforms.

How did the Online get to be such an interntwingled world? What are it's elements, does it have a structure? When broken down, the internet – according to the OSI model – has seven layers[13]:

Layer 1: physical layer
The physical layer refers to electrical and physical aspects of devices, how source and destination are connected. In particular, it specifies how a device sends and receives information, such as using copper wires or fiber-optic cables. Examples of this include Ethernet or fiber optic cables, phone cords used for dial-up or DSL services, the coaxial cable used to provide broadband internet, the wires used to connect various components of a computer or even the radio signals used in wireless communication. Other functions of the physical layer include the conversion of signals into something that another layer can use (referred to as a bit), and adjusting the signal to allow for multiple users to use the same connection.

Layer 2: data link layer
The Data Layer is mainly the method in which information from the network is broken down into frames/pieces and transmitted over the physical layer. This layer is also responsible for some error detection and correction and some addressing so different devices can tell each other apart in larger systems.

Layer 3: network layer
Here the data being sent is organized. The Routing Layer works to coordinate related parts of a data conversation to ensure that large files are transferred. In other words, while the data link layer deals with the method in which the physical layer is used to transfer data, the network layer deals with organizing that data for transfer and reassembly. This layer also handles aspects of Routing Protocols, finding the available [best] path(s) from one network to another to ensure delivery of the data.

Layer 4: transport layer
The Transport Layer is the level at which system reliability and quality are ensured. This layer manages traffic flow through the network layer to reduce congestion on a network, and performs error checking ensuring quality of service by resending data when data has been corrupted. Some of the most popular methods of encryption and firewall security take place on this layer.

Layer 5: session layer

13 Source: https://simple.wikipedia.org/wiki/OSI_model and http://www.quora.com/What-is-the-simplest-explanation-of-the-OSI-model-involving-real-examples

The best way to remember a session is thinking of it as a Hangout or Yahoo messenger chat. When two people start communicating a session is created, as soon as one ends the chat or disconnects session is broken. Session layer creates a new session for a pack of data. The Session layer uses the stable communication system created by the transport layer to create and control conversations (or sessions) between two computers. Computer sessions consist of a series of requests and responses that are used by higher layers to manage communication between different systems. This allows for such things as password validation, Dynamic Host Protocols, and interactive media streaming.

Layer 6: presentation layer
The Presentation Layer is where the human readable programming languages are translated into machine code instructions used by the lower layers. At this level it is often hard to distinguish this level from the Application Layer. In general terms, this layer works by taking care of the directions given by the user at the application layer.

Layer 7: Application layer
This is the level that the user often interacts with. This is where data turns into websites, chat programs and so on. Many protocols run at this layer, such as DNS, FTP, HTTP, HTTPS, NFS, POP, SMTP, and SSH.

Which makes the internet a rather complicated place. This structure is not a given, the protocols, the setup of the whole structure is being watched over by many institutions and organisations, to ensure that the internet stays as open as it is. Let us also investigate from a different angle how it's all put together.

2 is a Structure

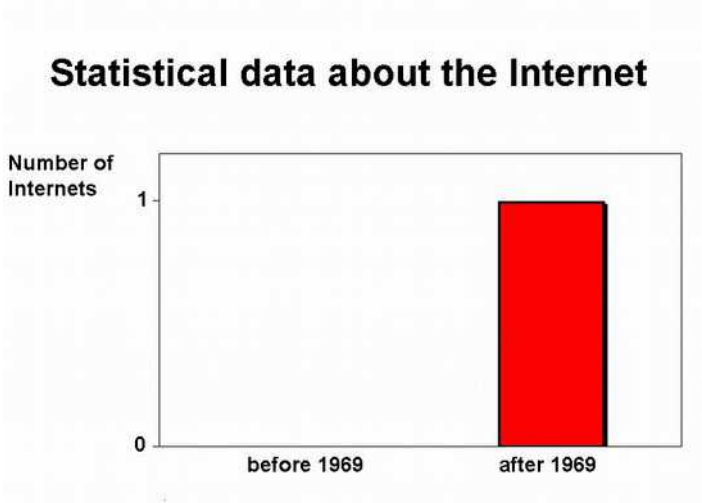
For most of us the internet is synonymous with that thing which opens when you hit the Chrome/Firefox/Safari button. Many of us upload to the cloud but what is this cloud and where is it? Whose is it? How did it get there?

Most of us don't know the difference between a browser and a search engine, and many users don't even realize they are using the internet when they check Facebook on their mobile phones[14].

We use it so naturally, why would you stop to think about it? It is our second nature. But the internet and the world wide web are not the same, the search engine is not the browser, the internet is not a wireless, intangible entity of sorts that magically appears on your screen. It is as real as the world in your window every morning when you look outside, only it has more unicorns, and changes more rapidly. The internet is a very tangible, as a matter of fact a huge, immense, awesomely complex and frightfully impressive structure that has popped up and grew out to be a nervous system of the planet in less than a generation.

Substrate

Where on earth did it come from? On the 29th of October 1969, 100 days after the Moon landing, the first message was sent across the internet, increasing the number of internets from zero to what we have now: 1.

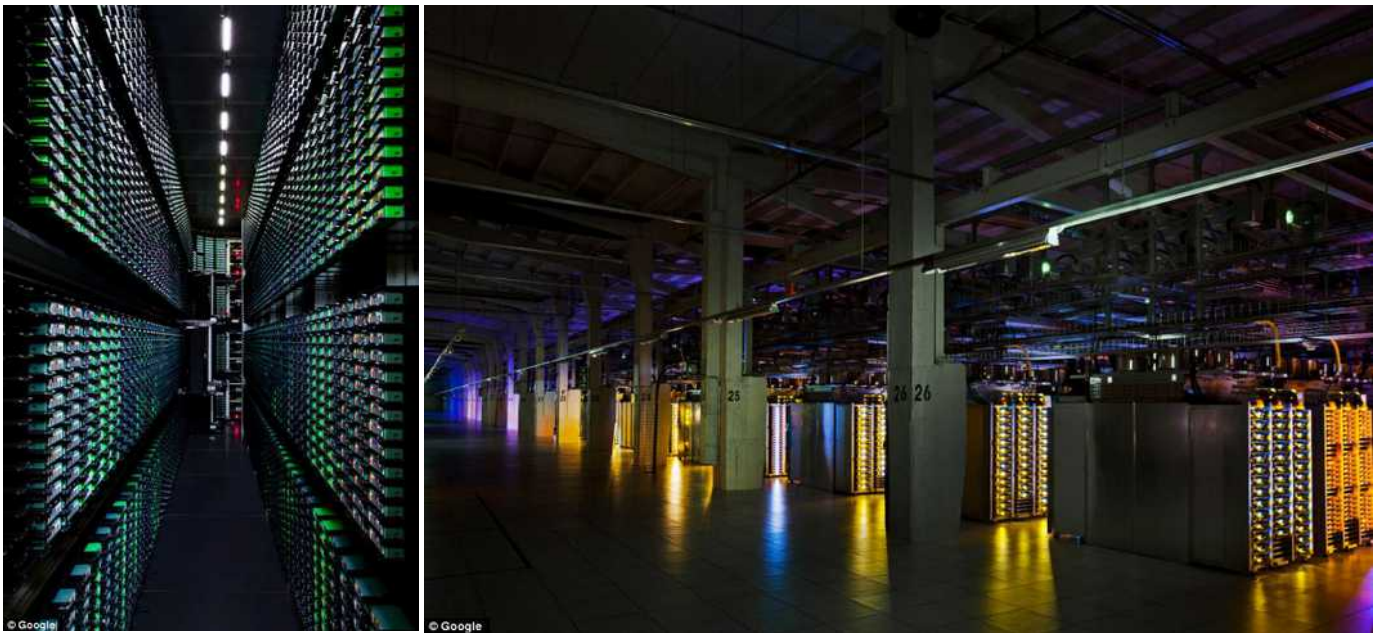


Simply put *the Internet* is a network of computers, actually a

14 http://i100.independent.co.uk/article/people-using-facebook-dont-realise-theyre-on-the-internet--xJA_uIE42e

network of networks of computers. It is billions of computers connected together, including computers in cars, in smart washing machines, smartphones, tablets, laptops, computers calculating algorithms for the stock market, military and scientific research computers - each individually identified by IP addresses[15].

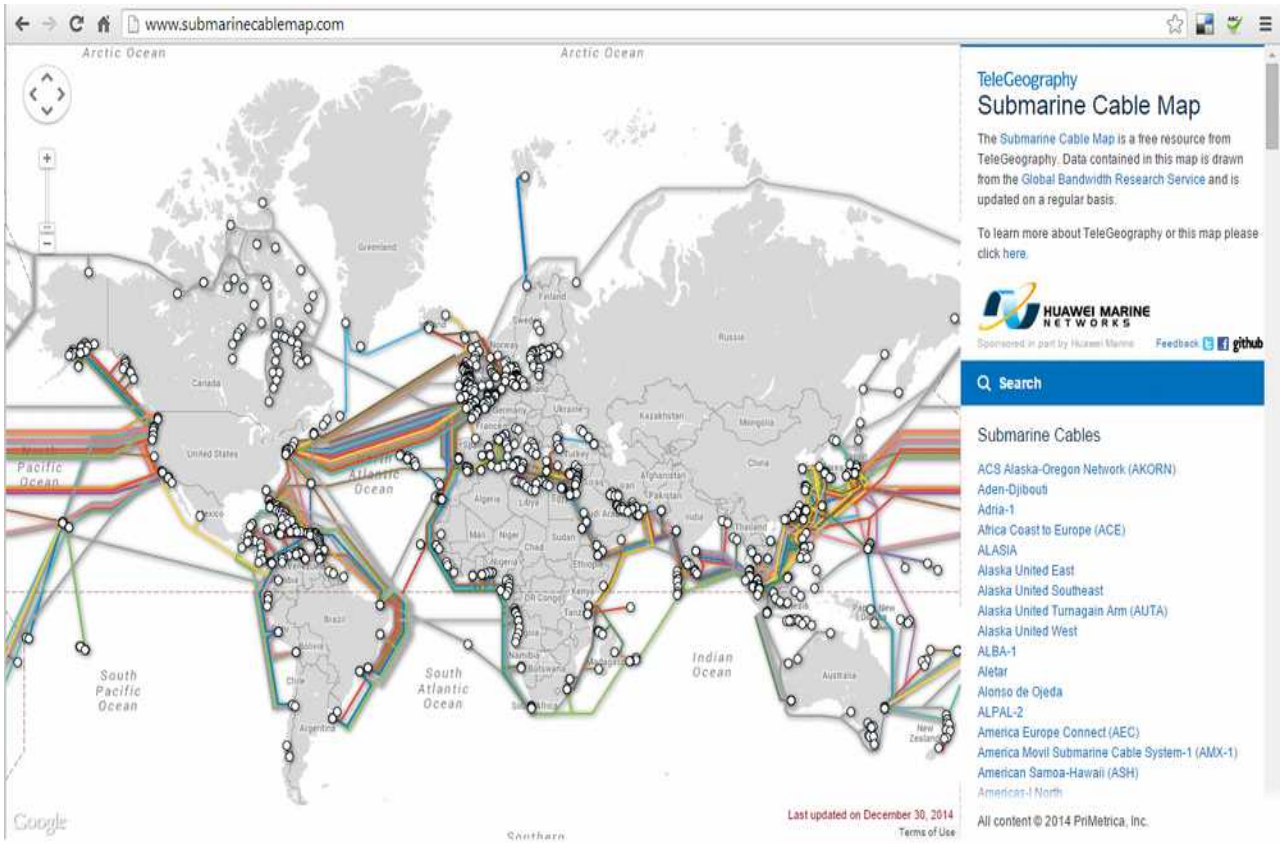
It's a vast set of tubes, cables transferring data, and storing this data on servers in massive server parks. And massive means really, really massive:



These images are from one of the Google server parks. And this is only one of many, and each of them are as big as several of the largest IKEA store you have ever been to. It makes the internet very tangible. It is the biggest human built entity ever. Bigger than the electricity network, the phone network, the postal service, all that covers the world. The cables connect the continents[16] and connect your computer to every other computer in the world that is also connected to the internet:

15 An Internet Protocol address (IP address) is a numerical label assigned to each device (e.g., computer, printer) participating in a computer network that uses the Internet Protocol for communication.[1] An IP address serves two principal functions: host or network interface identification and location addressing. Its role has been characterized as follows: "A name indicates what we seek. An address indicates where it is. A route indicates how to get there." From Wikipedia

16 http://www.submarinecablemap.com/



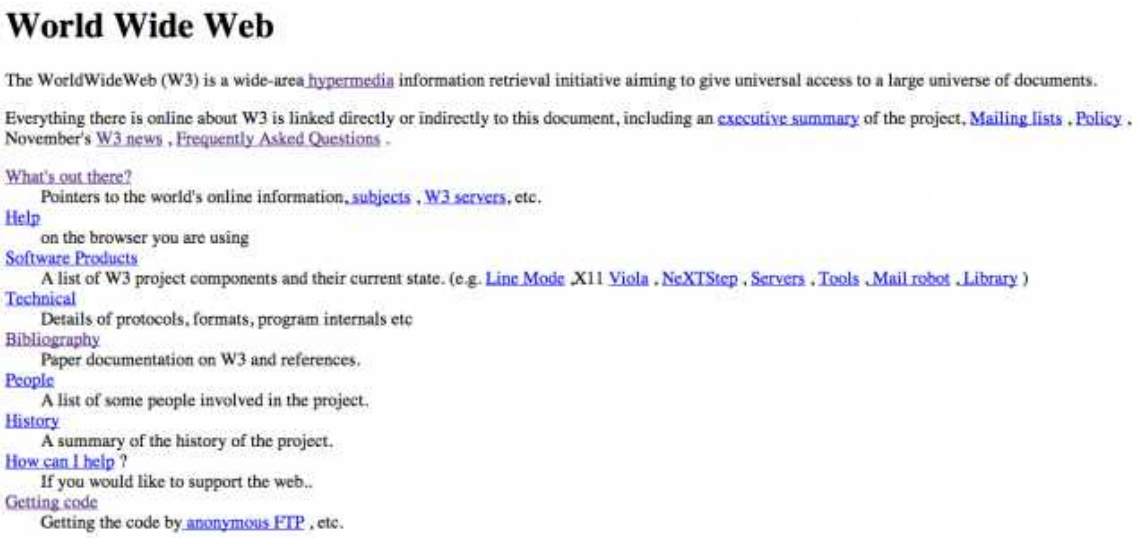
There is always a cable somewhere. Your laptop connects to a router that connects to the cable of the telephone network, that leads to these servers – just as your phone connects to a cellular radio tower, otherwise you don't have reception, there is no signal, there is no possibility to transfer your data. The tower is of course again well wired up and connected to the network of the internet.

Data is also very tangible in this sense. Ultimately even data lives somewhere. For example YouTube, now owned by Google Inc., is an American enterprise, so every time you click on a video you want to watch, the request goes across the ocean (assuming you are not in America) and requests the video – their content – to be downloaded. This takes time, money and it's prone to mistakes, so what happens, is that Google put server parks all over the world and videos that have been requested once are copied to these serves so the next request doesn't have to cross the ocean, it can download the video from the local server. This process is called caching and illustrates how even data is shipped by the truckload, and doesn't just appear from thin air.

Most of the data we use and access, the videos, YouTube, Facebook, all websites containing cat pictures or not is only just a part of the internet and it's called the World Wide Web, or the "web" for short. So the Web is the part of the Internet we can access via the browser.

The web is a network of webpages that contain text, images, other multimedia and we navigage them via hyperlinks or nowadays mostly with the help of search engines, this is the part most users comes into contact with. This construct has been designed by

Tim Berners-Lee in 1989, and the first website[17] he made in 1990 which has now been restored to it's original URL. This is a screenshot of the website:



World Wide Web

The WorldWideWeb (W3) is a wide-area hypermedia information retrieval initiative aiming to give universal access to a large universe of documents.

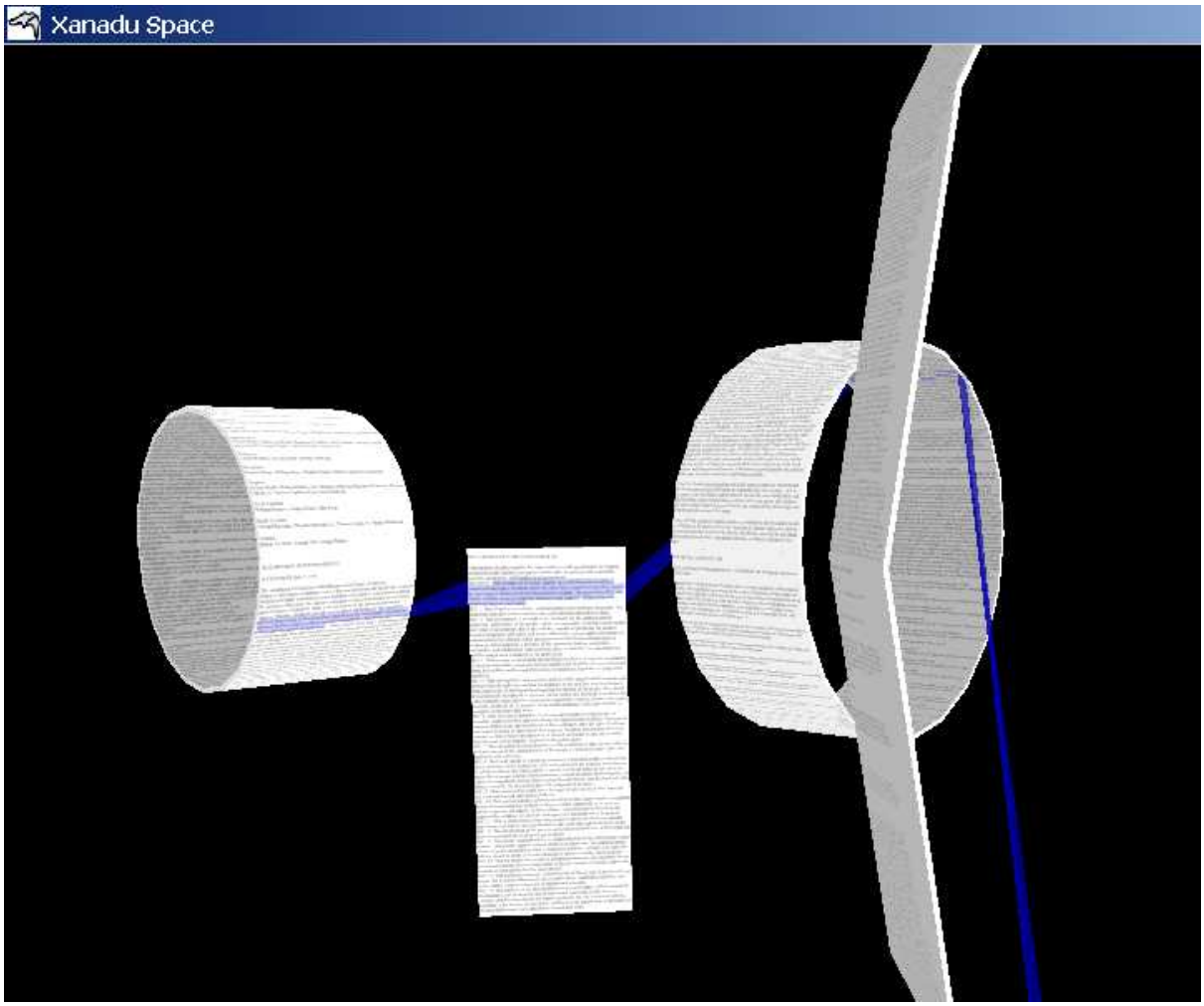
Everything there is online about W3 is linked directly or indirectly to this document, including an executive summary of the project, Mailing lists , Policy , November's W3 news , Frequently Asked Questions .

What's out there?
Pointers to the world's online information, subjects , W3 servers, etc.
Help
on the browser you are using
Software Products
A list of W3 project components and their current state. (e.g. Line Mode ,X11 Viola , NeXTStep , Servers , Tools , Mail robot , Library)
Technical
Details of protocols, formats, program internals etc
Bibliography
Paper documentation on W3 and references.
People
A list of some people involved in the project.
History
A summary of the history of the project.
How can I help ?
If you would like to support the web..
Getting code
Getting the code by anonymous FTP , etc.

Tim Berners Lee not only wrote the software that would become the Web as we know it but made the software required to run a web server freely available, along with a basic browser and a library of code. This has been picked up and further developed and expanded by other scientists and computer enthusiast which made the web grow.

Would others have developed other software, things could have taken an other course and the web could look like the screenshot below. This is the print screen of the Xanadu project of Ted Nelson, another internet veteran, who has been developing in the past decades a different type of virtual space to deal with text, hyperlinks, where all text and it's variations can be seen at the same time. Which is definitely a possibility albeit not the currently dominant one.

17 http://info.cern.ch/hypertext/WWW/TheProject.html – original URL, according to http://arstechnica.com/information-technology/2013/04/first-website-ever-goes-back-online-on-the-open-webs-20th-birthday/



Why one software or one code language becomes the standard, can be compared to why the US is English speaking and not German, French, Dutch or Italian. There were many users of other languages as well (337, to be exact), but for the sake of understanding each other, one lingua franca prevailed. English is not the official national language, but it became dominant because it spread fastest, widest. In the same manner, one protocol, and a handful of languages had to be chosen for the internet to be able to communicate across different continents. Which still doesn't mean that there is a universal standard but we have customs, making it easier to understand each other and connect.

This is what the "internet" is today. It is a noun, denoting an pervasive, massive construction. But it started out as a verb, "internetworking", when the US army, US and European scientist, and commercial parties just wanted to interconnect their networks. Nobody, not even them expected that this would happen. That apparently we want to connect this much and now everything is linking up to everything. The internet was up and flourishing in a ridiculously surprising short amount of time. The start of the web is 1991, the year when the Soviet Union fell and the first Gulf War began, it wasn't all that long ago and now it's unthinkable that the Internet should go away.

Hardware[18]

As said before, the internet is a set of tubes, it is a very tangible set of objects. Everything connected to the internet has also a very material, very tangible side to it. Every image, song, every file is stored somewhere and can be identified as a unique object that can be traced to a physical location.

Journalist Andrew Blum went finding out about it some more when a squirrel disconnected him from the net by chewing through the cable. It seemed such a strange idea to him that a furry rodent could ruin the internet that he went out to map the physical realm of the internet.
From the intro to his book, Tubes: "For all the talk of the placelessness of our digital age, the Internet is as fixed in real, physical places as any railroad or telephone system ever was. In basest terms, it is made of pulses of light. Those pulses might seem miraculous, but they're not magic. They are produced by powerful lasers contained in steel boxes housed mainly in unmarked buildings. The lasers exist. The boxes exist. The buildings exist. The Internet has a physical reality, an essential infrastructure, a 'hard bottom,' as Henry David Thoreau said of Walden Pond. In undertaking this journey, I've tried to wash away the technological alluvium of contemporary life in order to see—fresh in the sunlight—the physical essence of our digital world."

Parallel to this, the technology of geolocation is also being developed, GPS locators are becoming millimeter precise. Physical location as a concept is not only not going away, but it's becoming one of the most valuable pieces of information around.

This whole infrastructure wasn't of course built in one go. Early computers and a longing for universal calculating machines have been around since forever. In the sixties there were already a few big computers, the so called mainframes, which took up almost a room. These were big computers for bulk tasks – doing one thing at the time. Then the idea of timesharing popped up, which meant that several users were connected to one mainframe at the

18 1.) tools, machinery, and other durable equipment
2.) the machines, wiring, and other physical components of a computer or other electronic system.

same time, allowing them to use the capacity of the computer concurrently, so that one computer would start to multitask.

Timesharing wasn't necessarily a revolutionary breakthrough, but in the process email (1965-72) was invented, because scientist needed to communicate with each other. Electronic mail was immediately passionately embraced by the scientific community, which provided a tipping point in the birth and early development of the internet. Email was adopted outside the scientists' circles in the nineties and it gave rise to a wider network and community who would use the Internet, build the new layers of it and fill it with content.

Why was the internet invented? Sources diverge on what the exact origin is or intention behind the internet is, and on the details of how the story goes. Some deny it was military in nature, some insist on it, and as always, probably it's all more or less true, depending on from where you look at it. And even more probable is that when they were developing it, no one could actually imagine what they were creating.

In the sixties the US government did fund research to build robust, fault-tolerant communication via computer networks and this came in response to developments on the Russian side, and from this the Arpa network emerged, and it was partly defense, partly research. Robert Taylor[19] says that the ARPA network set up in 1958 was a direct response to the Sputnik that took the US by surprise. ARPA was meant to look for longer-term expectations associated with it, research projects to ensure the US won't be surprised again. Therefore the initial projects were space related. The whole network was meant to enable a quicker and more efficient transfer of knowledge than it was possible up to then via telephones, mail or humans visiting and also to avoid parallel researches. Basically it was meant to provide a network to share intelligence.

In 1960 NASA was founded by Kennedy and all the space research could be transferred to them, so ARPA could go on with other things, such as for example computer research[20]. The instruction to them was: go out find people with big ideas, and if they do work, the pay-off will be very large. This was the age of experimentation, mind opening and big Ideas, big People. This was the period of LSD, flower power and mind control experiments by the government. The Beatles and the Rolling Stones, the rise of plastic, the Vietnam war, so many things were going on and so many more had to be discovered. This was also the period of the Cold war so when in 1962 long range missiles were discovered in Cuba, the United States realized it needed the network to be decentralized. In case one or some of the nodes would fall out, the network would still have to be stable.

The US worked together with the scientists of the UK and France, and with the commercial American Rand corporation so the roots are international, scientific, military and commercial – to

19 Director of ARPA's Information Processing Techniques Office from 1965 through 1969, founder and later manager of Xerox PARC's Computer Science Laboratory from 1970 through 1983

20 https://www.YouTube.com/watch?v=doQAwLb-DEE&list=PLD22CA92C54FD24FC&index=20 48:32

be exact. This also meant that there were many different languages and disciplines involved, so the problem of translation soon arose. Computers had their own languages, they couldn't communicate with each other from the start and only in 1975 was the protocol called Transmission Control Protocol and the Internet Protocol (or TCP/IP[21]) for short invented which gave the network a universal character which enabled the computers to communicate across the globe.

What Robert Taylor, who was in charge of the ARPA-net at the time, is very definite about, is that the ARPA-net wasn't established for "in case of a nuclear attack". It was created in 1969 so that information could be shared between parties who had same kinds of interests. Of course it would be practical in case of a nuclear attack, but the mindset was that of sharing. This is important to point out for the nativity myth, and to point out the connections between structure and content – because this makes it obvious that the internet is a direct descendant of the Arpanet both in structure and in ideology. It came from the urge for wanting to know and wanting to share.

In 2014 the World Wide Web turned 25 years old, dating it back to the invention of the World Wide Web by Tim Berners Lee, and the internet became let's say 45, dating it back to 1969, when the first two nodes of what would become the ARPANET were interconnected between Leonard Kleinrock's Network Measurement Center at the UCLA's School of Engineering and Applied Science and Douglas Engelbart's NLS system at SRI International (SRI) in Menlo Park, California, on 29 October 1969. Since then the net has become a complex and intertwined matter, so much so that no one oversees it anymore, no one person understand it all. It works as if by magic, there are instances when even the experts shrug – it just works like that, nobody knows why. As science (fiction) writer and futurist Arthur C. Clarke formulated in his third law:

Any sufficiently advanced technology is indistinguishable from magic.

The internet has acquired that status. All parts have been invented separately and worked on in little teams or vague communities, still, the whole thing functions, and it functions as one thing. The internet can best be regarded as one humongous thing – and as Kevin Kelly, is the founding executive editor of Wired magazine says, one very well functioning machine, because since its birth, it never has had any down time, it has not been broken. It has been switched off in certain countries, restricted and modified, but there has never been a global blackout. Which makes the net the most reliable productum of the humanity this far.

Despite that, it could be taken down in less than half an hour. The internet currently rests on 13 root servers[22], spread

21 TCP/IP is a protocol that defines how data is transmitted through the internet. TCP breaks the data into packages and reassembles them at the endpoint, IP makes sure the packages are addressed properly. More at http://www.w3schools.com/website/web_tcpip.asp

22 http://www.root-servers.org/

across the globe, and these servers are the backbone of the whole operation. Since they are physical objects, they can be attacked, destroyed, and in theory yes, the internet *could* go down.

Not that it's probable. The prognosis is that our technical progress will only increase. Moore's law is pointing out how computing capacity double each 18 months, which also translates to its accessibility and increasing cheapness of hardware, and Metcalfe's law explaining that the interconnectedness is proportional to the square of the connected users. Which means that the more are connected together, the exponentially more connections are established.

There are of course also problematic details such as building material. Electric devices, such as laptops, mobile phones and MP3 players need at least 4 minerals, namely gold, cassiterite, wolframite, and coltan which are scarce and delved under inhumane circumstances. They are called *conflict minerals* for a reason, and are delved in Eastern Congo, for example. The resources are limited, that process of delving is abusive, the conditions and the political situation around it is very delicate. One initiative to deal with this issue is the Dutch social enterprise FairPhone[23], when they designed and sell a phone that is of minimal harm to the people and the planet.

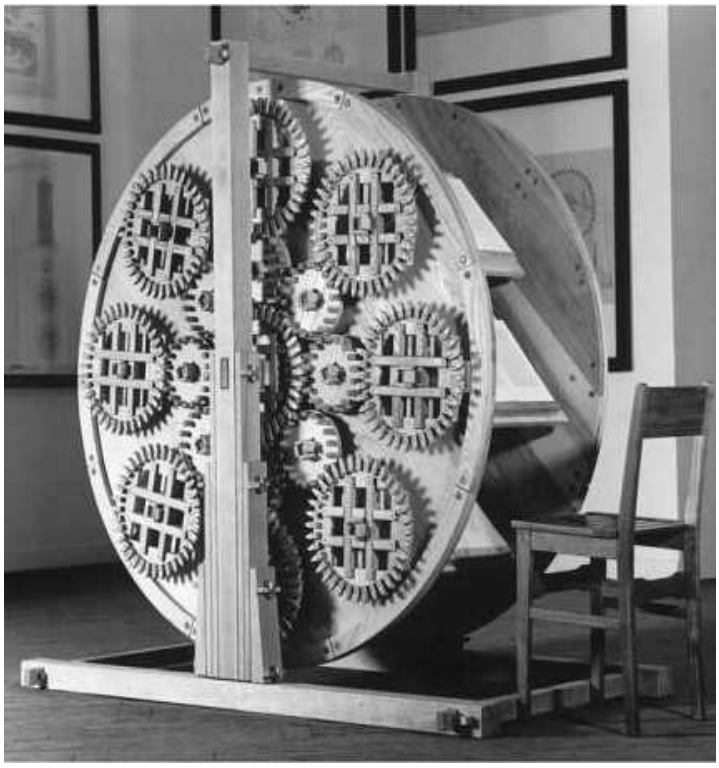
The other end of the cycle also poses a problem: with all that speeding up of upgrading, where do the obsolete items go? Tons of devices are thrown away, which weighs heavy on nature. There is a very material part of the digital world which needs to be addressed as well.

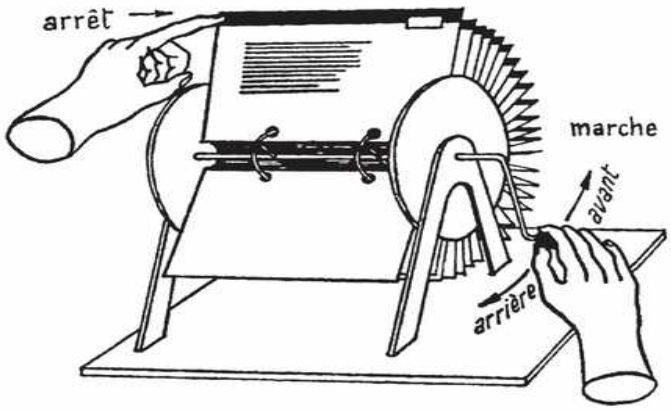
Software[24]

When we are using the computer, we are inevitably using some program, such as the operating system, the text editor, the finder or the windows explorer, the image viewer, which are all software. Most of us approach the information on the Internet via a search engine, and search engines, such as Bing or Google or DuckDuckGo are also software. They are programs built to make the computer do something, and to make one machine perform many operations and at the same time.

23 https://www.fairphone.com/

24 Software is any set of machine-readable instructions that directs a computer's processor to perform specific operations





Hardware has been in around for a very long time and its development can be traced back to ancient times. There was always technology to enhance our mind, like the abacus, the chess machine or the Antikythera mechanism, which is considered to be the first analogue computer but no one can say for sure what it was. With the Enlightenment the need to compute became bigger and bigger and in the twentieth century we were able to try to really make these computers. The first instance of software can be traced back to the Analytical Engine of Charles Babbage for which Ada Lovelace, the daughter of the famous English poet, Lord Byron designed the first software in the mid-nineteenth century. This software was never run, these were side notes to Menebrea's paper on Babbage's Analytical Engine, but the conceptual leap to use the machine beyond mere calculus to solve complex problems was made back then, more than a century before any proper computer existed.

Since the time of Lady Lovelace many attempts have been made to make machines we can manipulate, that will serve us in many ways. Another one that should certainly be mentioned here is the memex (from “memory” and “index”) of Vannevar Bush.

He invented and described this machine as early as 1945 to provide an "enlarged intimate supplement to one's memory[25]" It was never built but it would have been a browser where one could build personalized links between pieces of information, which was an early form of hyper-linking. It could not be executed but it was the inspiration for the later hypertext systems, which lead to the web.

These software have enabled a very wide variety of machines which we have adapted and built into our lives or even our bodies. By now we are fullblown cyborgs[26] who have electric implants (pacemakers, hearing aids, prosthetic limbs), who store even part of their brains in handheld devices and who have outsourced the boring task of remembering to machines, and no longer do we need to calculate when we can just look things up.

Anthropologist Amber Case argues that we are cyborgs, because we have a second self, that lives online. An online identity, that we have to maintain, and keep up appearances. Kids have to go through two adolescences: one offline and one online.

In the development of technology there was a moment when we realized that sometimes it's even more efficient to remove the human altogether from the equation and let the machines do the talking to machines. Programming became a question of connecting the programs with each other, without opening the boxes. A striking example is described by W. Daniel Hillis, who says that in the 20th century when you switched on the computer, you had to enter the time and the computer would keep track of the time elapsed from then on. Sometimes you had to write your own program, but that meant that you knew how it worked. Now there is the internet, it's much easier if computers ask each other for the time, via the Network Time Protocol (NTP), which makes it faster to start up a computer, but as good as no one know how the NTP works, because why would you? Also this task is outsourced to the machine, we don't think of adjusting the time anymore, because it works.

Bit by bit the machine disappears from our perception. We don't think about it anymore while we use it, it just becomes invisible. All technologies tend to disappear when they become part of the everyday. We also don't see clocks, letters, electricity anymore. We barely notice cars, and don't ask questions about it either. It's there. Sensors, computers, the internet are becoming a given.

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25 Bush,Vannevar (1945) As We May Think, The New Media Reader, The MIT Press, p. 35.

26 A cyborg (short for "cybernetic organism") is a theoretical or fictional being with both organic and biomechatronic parts. The term was coined in 1960 by Manfred Clynes and Nathan S. Kline. From Wikipedia.

Disappearing of computers bring us to Ubiquitous Computing or ubicomp for short. Ubicomp means that the computers step out of the screen – if you will – and go anywhere and everywhere using any device, in any location, and in any format. They can enter the fridge, they can live in the thermostat, the coffeepot, the clock, the wardrobe, the shoes, the kitchen, the bathroom, the bedroom. The toilet can give you a health check up[27], the NEST[28] knows how warm you like your house and when you're home, your washing machine takes into account that it can save energy by running at a certain time of day, your coffeepot could tell the waiter when it's empty and you need a refill, your shoes never get lost again because you can tag and trace them with a locator. Even glasses get smart.

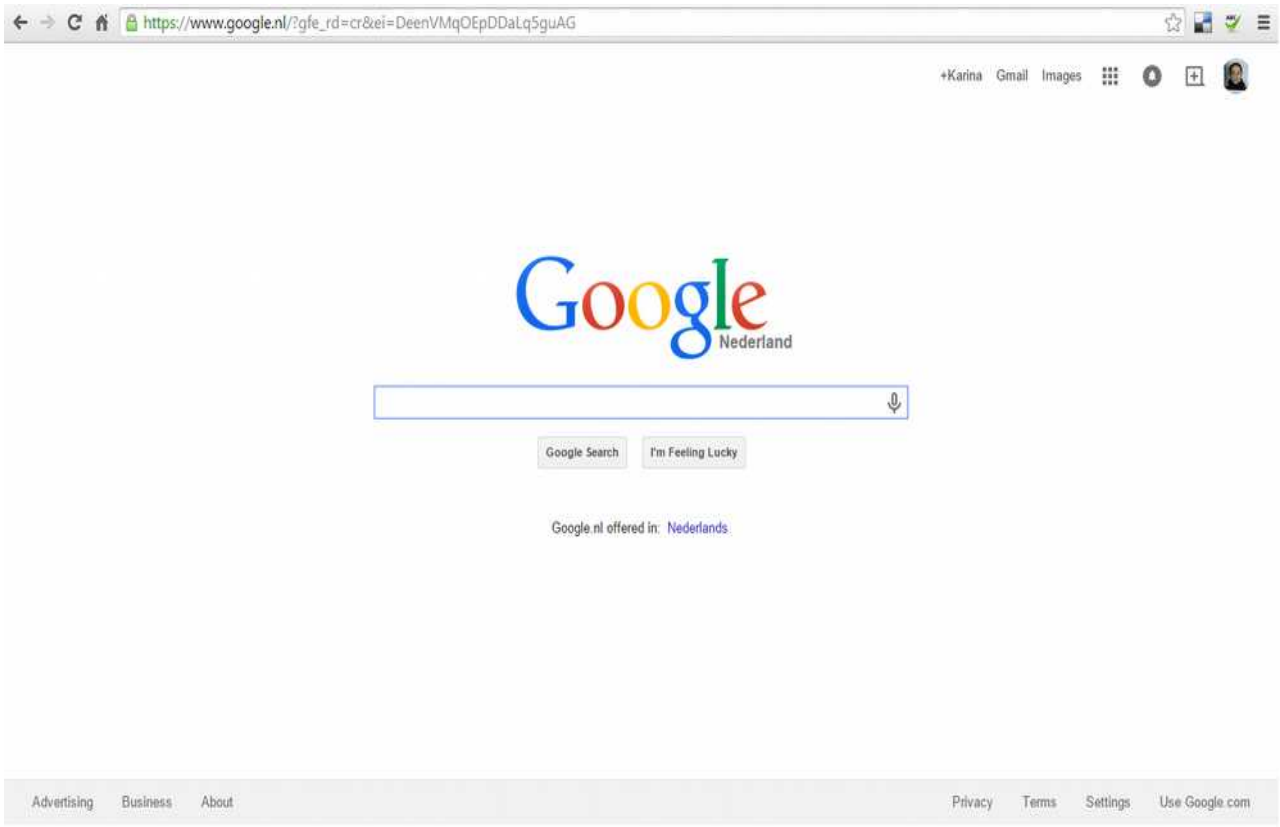
All these devices connected over the internet is called The Internet of Things (http://www.theinternetofthings.eu/) which leads to a whole new range of topics and issues that I won't enter into here but it's an existing, very interesting and quite urgent topic – since it is the most probably version of our future. We are creating an environment with more and more computers, increasingly interlinked which gives rise to new applications of Artificial Intelligence (AI), software that have an effect on us, that make decisions for us, upon which we rely and which we could allow to discipline and therefore control us. If for example fridges won't open if I eat too much, or too late at night, cars disable my phones texting function, a new type of relation between man and their machine is established. It's called algorithmic regulation[29].

Artificial intelligence which used to look like this, like a side project of dr. Frankenstein

By now the field of AI is highly technical and specialized, and the researched territories are deeply divided into subfields

27 Dr Michio Kaku https://www.YouTube.com/watch?v=219YybX66MY
28 https://nest.com/
29 http://www.theguardian.com/technology/2014/jul/20/rise-of-data-death-of-politics-evgeny-morozov-algorithmic-regulation

that often fail to communicate with each other and produce very different manifestations. One of the most known ones looks like this:

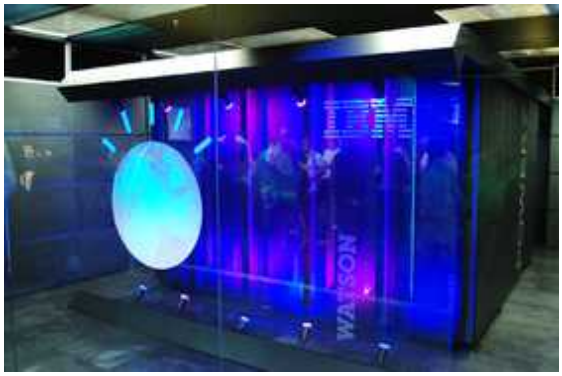


Google doesn't only search for you, it learns you. It learns what is relevant for you, they predict the next word you would type, the ads you'd like to see, they tailor the web around you[30]. From your location, browser history, browser settings, language it generates relevant advertisements and relevant search results. Which is marvelous and practical – and highly problematic.

Or meet Alice, the chatbot, with whom one can have surprisingly intimate and interesting conversations: http://www.alice.pandorabots.com. Albeit most of the conversation depends on our own input is, because she is more like a reactive... software, with set rules for generating answers. Nevertheless the interaction can be as emotionally involving as with a real person, so I would certainly recommend to have a chat, just to try it. You probably have met chatbots before tough. Many chat programs use chatbots to bridge the occasional slack in activity in chatrooms and chatbots are now also starting to enter the realms of the health care and keep the elderly company.

30 Filter bubble: is a result of a personalized search in which a website algorithm selectively guesses what information a user would like to see based on information about the user (such as location, past click behaviour and search history) and, as a result, users become separated from information that disagrees with their viewpoints, effectively isolating them in their own cultural or ideological bubbles. Prime examples are Google Personalized Search results and Facebook's personalized news stream. From Wikipedia.

A more complex version of AI is Watson, made by IBM, the computer that won the *Jeopardy!* television quiz competition in 2011. Which is pretty impressive because it didn't memorize answers, but used 4 terabytes of information written in natural (human readable) language and he directly understood and answered the questions of the host – which were also in natural language, larded with puns, allusions, jokes. In 2013 IBM announced that Watson software system's first commercial application would be for utilization management decisions in lung cancer treatment at Memorial Sloan-Kettering Cancer Center in conjunction with health insurance company WellPoint.



One of Watson's predecessors was Deep Blue, the chess computer from IBM that won from world chess champion Garry Kasparov in 1997. After 2005 the computers have consistently outplayed human grand masters.

However AI is still very far from outperforming humans on all fronts, but predictions are that that will only last a few more decades.

One of the latest developments is, that Google scientists led by the Stanford University computer scientist Andrew Y. Ng and the Google fellow Jeff Dean, created one of the largest neural networks for machine learning in history by connecting 16,000 computer processors, which they let loose on the Internet to go learn something, anything it wants, on its own[31].

In other words, they set the software free to go learn what it pleased. The interesting thing was, that confronted with all the data, what the software did is what we all do: it started looking at cats.

The accuracy with which it recognizes cats is still only

31 http://arxiv.org/abs/1112.6209 http://www.nytimes.com/2012/06/26/technology/in-a-big-network-of-computers-evidence-of-machine-learning.html?pagewanted=all&_r=0

15.8%... That is still 70% better than thus far, but it's not a sure way of cat-detection, but the idea that a program, let loose on the internet can actually start teaching himself stuff, is rather amazing.

According to some this is only the top of the iceberg, we are headed towards a technological singularity, when computers surpass human intelligence, when computers develop computers, and we ourselves can become software that is then uploaded into the network. An angle of this condition is what the film Matrix has portrayed and what futurist Ray Kurzweil predicts and talks about extensively.

Firmware[32]

The Internet, as we know it, has been in existence for about 25 years, which is not a very long time. Just over 9000 days. Because of its structure, and how it came about, the net has some basic "values" built into it. Early on it was decided that it should be a decentralized network, no single computer should run the show. It's very collaborative network, and it's mostly based on trust and cooperation, much of the code was open source.

Another very important arrangement what the Web is based upon is the hyperlink structure[33]. The web had the potential to become just like a book, something static, a long linear line of page after page, but with the hyperlink solution pages started to link to each other. And the act that the maker of one page points to another, saying "what they have to say is also very interesting" is generous and open and allows for new ways of connecting.

Early on net neutrality[34] was established, which means that content travelling through the lines should be all treated equal, regardless of who the originator is, who the addressee is and what they are actually sending to each other. In the past few years Internet Service Providers (ISP's) have been trying to disrupt this practice and try to create different categories for which content providers could be charged. ISP's can do this because they own the cables and provide the services. But the physical layers, the cables and the network has been built for a large extent from public, tax payers money. Phone companies could not have built all the poles, cables, wires on their own, so they can't *own* all of

32 http://en.wikipedia.org/wiki/Firmware In electronic systems and computing, firmware is program code and data stored in persistent memory. Typical examples of devices containing firmware are embedded systems (such as traffic lights, consumer appliances, and digital watches), computers, computer peripherals, mobile phones, and digital cameras. The firmware contained in these devices provides the control program for the device.

33 David Weinberger researcher and technologist

34 From Wikipedia: Net neutrality (also network neutrality, Internet neutrality, or net equality) is the principle that Internet service providers and governments should treat all data on the Internet equally, not discriminating or charging differentially by user, content, site, platform, application, type of attached equipment, or mode of communication.

the network, and now for them to ask a dividend and threaten network neutrality, is outrageous. Thankfully on February 26, 2015, the United States FCC ruled in favor of net neutrality by reclassifying broadband access as a telecommunications service and thus applying Title II (common carrier) of the Communications Act of 1934 to Internet service providers.The FCC Chairman, Tom Wheeler, commented, "This is no more a plan to regulate the Internet than the First Amendment is a plan to regulate free speech. They both stand for the same concept."[35]

The internet is to a large extent voluntarily built and an estimated amount of 70-80%% of the content is self contributed by private persons and commercial undertakings (also called user generated content), so it's a place where people go to manifest themselves on their own accord.

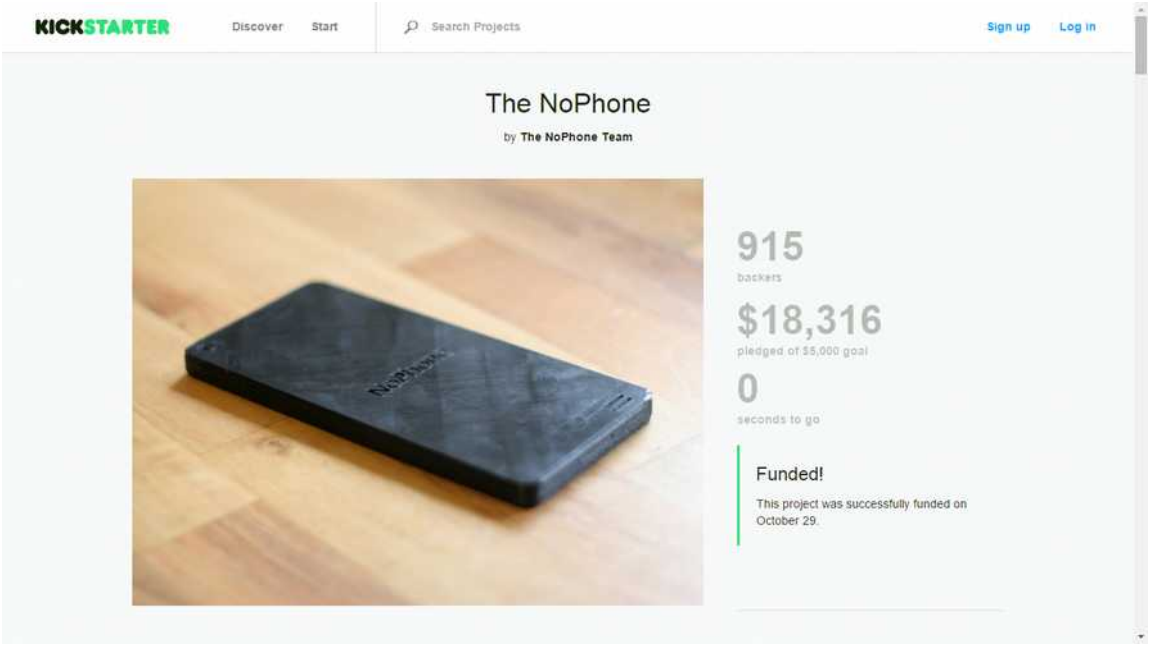
Because it is self-built, it used to be based on a certain hackers mentality, you had to invent the whole thing, see what else the machine could do than what it has been doing until now.

Now in this trial and error process we have built a nervous system for the world, which is at the core of everything we do. There is an interdependence between man and machine and the interconnectedness between ourselves becomes clearer and clearer. Everything we do creates data, which is stored in databases, get increasingly linked together, and have the potential to make us understand the world better – or destroy ourselves.

2 to 4 – from Structure to Offline

Supposing that there is still such a thing as offline. The internet is extending to more and more regions, and one very important region it's invading, is our brain. We think in terms of the internet. What we can order online, what we should post, what we should watch on Netflix. So much so that our little toys really become new organs. For those who can't stop fondling their phone, but are annoyed by the connectedness: VOILA! The NoPhone[36]:

35 https://en.wikipedia.org/wiki/Net_neutrality#FCC_ruling
36 http://nophone.myshopify.com/



Might sound silly, might be a spoof, but it actually did get funded on Kickstarter. 915 people paid around $20 each raising an amount of $18.316[37].

But back to the network. We are tied to it in so many ways, but for many reasons, such as security, monopoly, stability it's tricky that there is only one network, one option.

As an alternative some offline networks, so-called mesh networks[38], are being set up all across the world. These are alternative internets that don't blend in into *the* Internet, or that allow information to travel through different paths. Same purpose as if you would not send your mail by the government postal office but by a courier or an alternative package sending system. It can be argued that it is healthy to have options. But very hard to execute for the reasons of money, infrastructure (getting IP's), and access.

There are some big networks near Barcelona, Vienna, Athens, Cuba[39], all over the place, locally it works, but long distance it's difficult because it is wireless. Who would build and own the infrastructure needed for this alternative to the internet?

Plus how can they get an IP address? Each server needs one to be found and it's very expensive to buy an IP for their little servers that keep the show running. So there are not many alternatives for staying outside *the* Internet, somewhere everybody gets connected. There is of course the option to go "off the grid", when an individual but usually a community leaves civilization as we know it to become self-sufficient without electricity. But even those interested in leaving the grid have websites[40] to share tips and information and communicate thus over the internet.

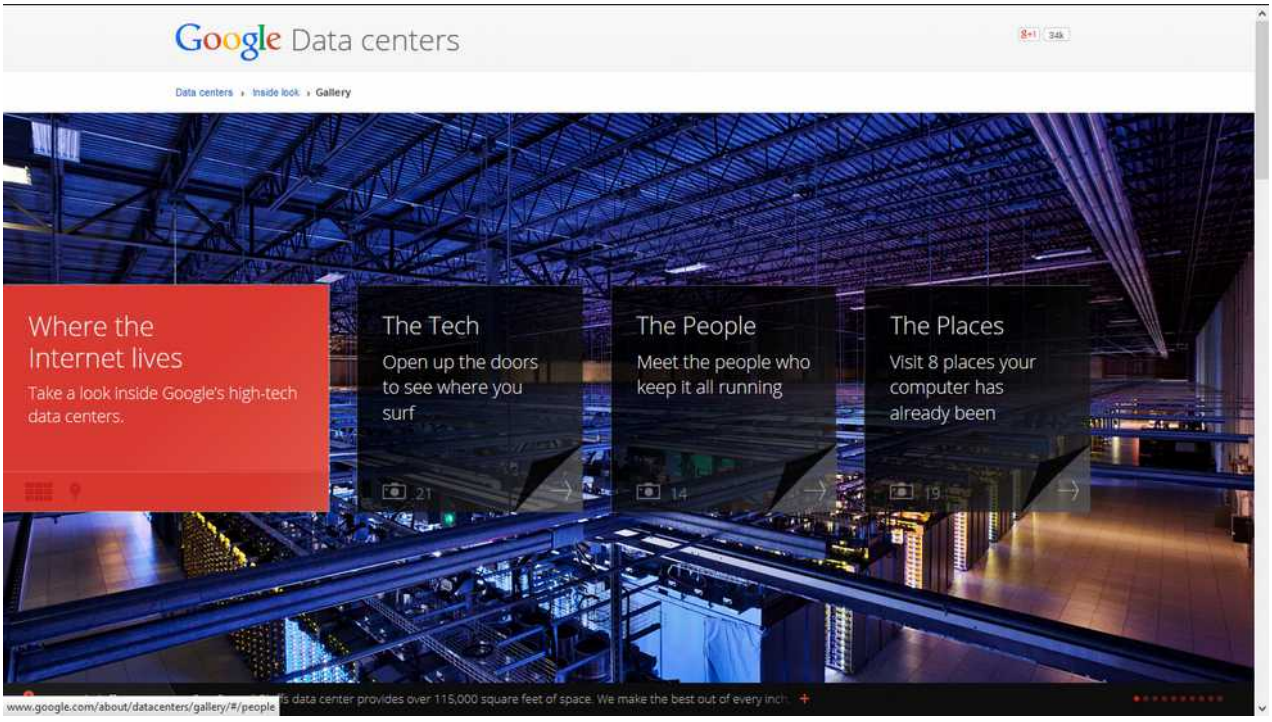
37 https://www.kickstarter.com/projects/nophone-usa/the-new-and-unimproved-nophone
38 https://en.wikipedia.org/wiki/Mesh_networking
39 http://gizmodo.com/cubas-illegal-underground-internet-is-thriving-1681797114
40 http://www.off-grid.net/, to name one

But no, machines are not taking over yet. The machines are enabling us to become more human. Given the possibility, we use these machines to connect and we have never connected in this way, so many to so many. Successful technologies get out of our ways and let us live our lives and we certainly only notice the internet when it's down.

2 => 3 How Structure Gives Rise to Information and Enables Data

Whenever we're using the internet, you generate data. We search, we like, we visit pages. This translates into data, that can be stored. Whenever you're using a Google product, for example, you are connecting to one of their datacenters. The data that you generate – email, google maps route, google search, calendar entry, file on Google Drive, is stored on their hard drives. And those hard drives are not accessible for the public. They are the property of Google, so technically all your emails that sit on one of their hard drives, belong to them – or at least you have no way to erase it, would you choose to.

They say they keep your data safe, your email virus free and destroy the contents of each dead hard drive – which they show in a demonstrational video and we believe them.
On these servers and on many more the internet lives[41].



But in the end it is an interesting question to wonder about who owns what. They and many other websites as Facebook, Yahoo,

41 http://www.google.com/about/datacenters/inside/streetview/ and http://www.google.com/about/datacenters/gallery/#/.

Instagram, Twitter, Tumblr, to name a few, host my information for free, so what exactly is what I can expect and demand? We are not customers, since we don't pay. So it is a question of trust in the end that what they know about me will not be used against me.

Lucky for the older generations that we made our teenage mistakes before the internet and don't have to look at it for the rest of our lives. So this is another one of those grey areas...

We like to share. We are wired to connect, as Webby Awards founder Tiffany Shlain says. When we started talking, the whole idea was to look into each others heads. Writing books enabled us to communicate with an even wider audience and on an even deeper level. And as soon as it was possible to send cats across the tubes, we did. The first webcam was created because they had a camera, so they monitored the coffee[42] and the whole internet took off because it had email and email was cool and in the nineties it was still the main reason for most of us to get involved with computers.

We create information simply because we can, and because it's neat, and we broaden the bandwidth of communication channels to communicate even more.

English anthropologist, social scientist, linguist, visual anthropologist, semiotician and cyberneticist Gregory Bateson argues that nothing else than ideas exists. That everything we experience is a thought or a sensation filtered through our brain.

We see images on our screens and what they do, is to give us more ideas. All we have, are sensory input, thoughts and feelings, which none of them are objective. A coffee cup on the table will be perceived by two persons differently. The only way to deal with change, with this alienation, and to stay in contact with eachother, is by communication – which also happens to make us feel good, loved and seen. So with do it with gusto, as the statistics prove.

The bandwidth of the communication channel is also formed by the hardware. Data is fragile, servers, cables, computers have limited capabilities. Google keeps every piece of your information on at least two servers, because it has to, because a server can break in which case they can't go back to the customer[43] with "sorry, we lost all your email of the past ten years". Digital data lives on hard drives and it eats electricity. Loads of it, which is again a very tangible effect Internet has on the planet. Servers have to be cooled with water, hardware has to be replaced.

We usually don't realize how vulnerable digital data actually is. Floppies from a few decades ago can no longer be read, because there are no A: drives anymore and if you find one, the operation system won't read it, and if it does, the floppy has deteriorated too much to be read, and if it isn't the file type on it can no longer be read by the software on the computer.

The only thing it can be used for then is to keep it as an icon, as the save button in text editing software to confuse the new generations who have no idea what that blue square should

42 http://www.thebiginternetmuseum.com/wings#trojan-room-coffee-pot

43 Which is an other topic for discussion what your rights are if you're using a free service, but I'll leave it for now.

represent.

A hard drive is good for 5 years, after that it breaks. SSD, solid hard drives such as USB sticks, or external memories have a limited number of modification that can be done to them. Websites are constantly changing[44], links get broken, pictures don't load, and once you have read something on the internet, you'll never find it back. It is a stream.

Currently the most stable form of data preservation is still paper. We don't necessarily experience it this way. Many of us, me included, has done away with the paper version of books, the vinyl version of music and the printed photos, because "I can find it on the internet" and when I move I have to lift a lot less, why would I bother? The risk however is that I have lost many many files, pictures and all kinds of information, which is a large part of my past in a negligent click of "do you want to replace these files?".

If all of us do this, and do away with our past, it becomes an Orwellian eternal present, where all I have is what I can remember to search for on Google and whatever Google returns, is all I have. When you are delivered to the search engines and the browsers define what you are allowed to find. And we understand why that can be tricky.

From the realisation that the web is very ephemeral, that links come and go and won't stay in place for a very long time, that binding to a domain name is not a great way to preserve something, came a new initiative called The Long Now. Reading bits also depend on the software. There are a lot of bits out there, but their interpretation is dependent on software that tell you what it means. The different software are literary different languages. Which can easily lead to collapse on a Tower of Babel scale. This set up is too very fragile. The Long Now wants to develop information systems that lasts 1000 of years.

Old technology is often neglected whereas it can literally save lives. Hundreds of stones like this dot the coast of Japan, they say that below this point, no houses should be built. But people forgot and were reminded in 2011 when the tsunami came.

We suffer form a *cultural amnesia,* a lot of things have happened on the internet that are now traceless. Archiving in some way is needed so we don't forget our history. But what software and what hardware can achieve that?

There is also the institution called the Internet Archive, and it should come as no surprise, they archive the internet, so that we can remember the past.

Other aspects should be considered as well: if a big corporation goes down, who will keep their data? Who has the money

44 VPRO Digitaal geheugenverlies http://www.npodoc.nl/speel.VPWON_1209790.html

to buy all the data, and the interest to do so? If Facebook goes bankrupt, all our timelines are gone. All photo's are 404 inaccessible. Usually they give a fair warning, but many social sites, such as the Hungarian iwiw, the Dutch Hyves, Yahoo!'s Geosites are already gone. Geosites and Hyves are archived to some extent, but much of it is gone. Is that a problem? Is it our cultural heritage? All of it?

And in the meanwhile until it's decided, we will keep on talking and producing more information to either preserve or let it flow into oblivion.

Another interesting prognosis for exponentially more information to come is that the hardware will extend from beyond the laptops and mobile phones and cars to further and further into meat space, into our everyday lives and even our coffeepot is connected to the internet so the coffee machine knows when to make new coffee. This, when the machines that are uniquely identifiable are connected over the internet and start talking to each other is called the Internet of Things (IoT) – estimatedly 50 billion items by the year of 2020. This has so many implications, it could fill books, but I would like to limit myself here to pointing out that such an even more complex and extended structure will exponentially generate even more information and new applications allow new types of information to be generated. Before the camera there were no photo's, before the film camera there were no films. Before Facebook there was no such thing as a status update, before the smartphone there were no selfies with duckface. With the prevalence of books after the printing press was invented new words were created because there was a demand for new, and because many of the new words were used to describe abstract concepts that just didn't exist before. In a similar way after the internet the vocabulary exploded because of the interaction of so many people, inventing over 9000[45] new concepts to refer to – from palmface to l33t to bronies. Then we might imagine what 50 billion connected computers might generate.

45 http://knowyourmeme.com/memes/its-over-9000

3 is an Abundance of Information.

Information might want to be free[46] but when it doesn't, we go after it to seek it out. And generate it by the truckloads. We, human beings are really fond of information. New pieces of information, such as noticing or finding out something, generates dopamine in our brains, like all pleasurable activities, like sex, drugs and rock and roll. So we tend to be terribly curious creatures. Look at small kids, who won't stop asking questions. If school wasn't there to teach the creativity and curiosity the hell out of us[47], we would probably never stop wondering. Asking questions and wanting to know is a very human trait. Primates, even if they know sign language, have never been observed to ask a question[48]. The probably reason for this is that only we humans realize that what I experience is not the same as what you are experiencing, that we are separate beings, and questions can be asked. One can call this self awareness or consciousness. Which causes just as much trouble in different areas of our lives but in this case it makes us wanting to express ourselves and communicate. Picasso said that all children are born artists, the problem is how to remain an artist when growing up. Education tends to be normative and we learn that there is one good answer, one good solution and if you guess it wrong, you'll be stigmatized, and if you come up with unusual but correct solutions you freak out your teachers which is even worse – and can't go to the higher education which is in theory *seeking* the people who can and dare to think outside of the box.

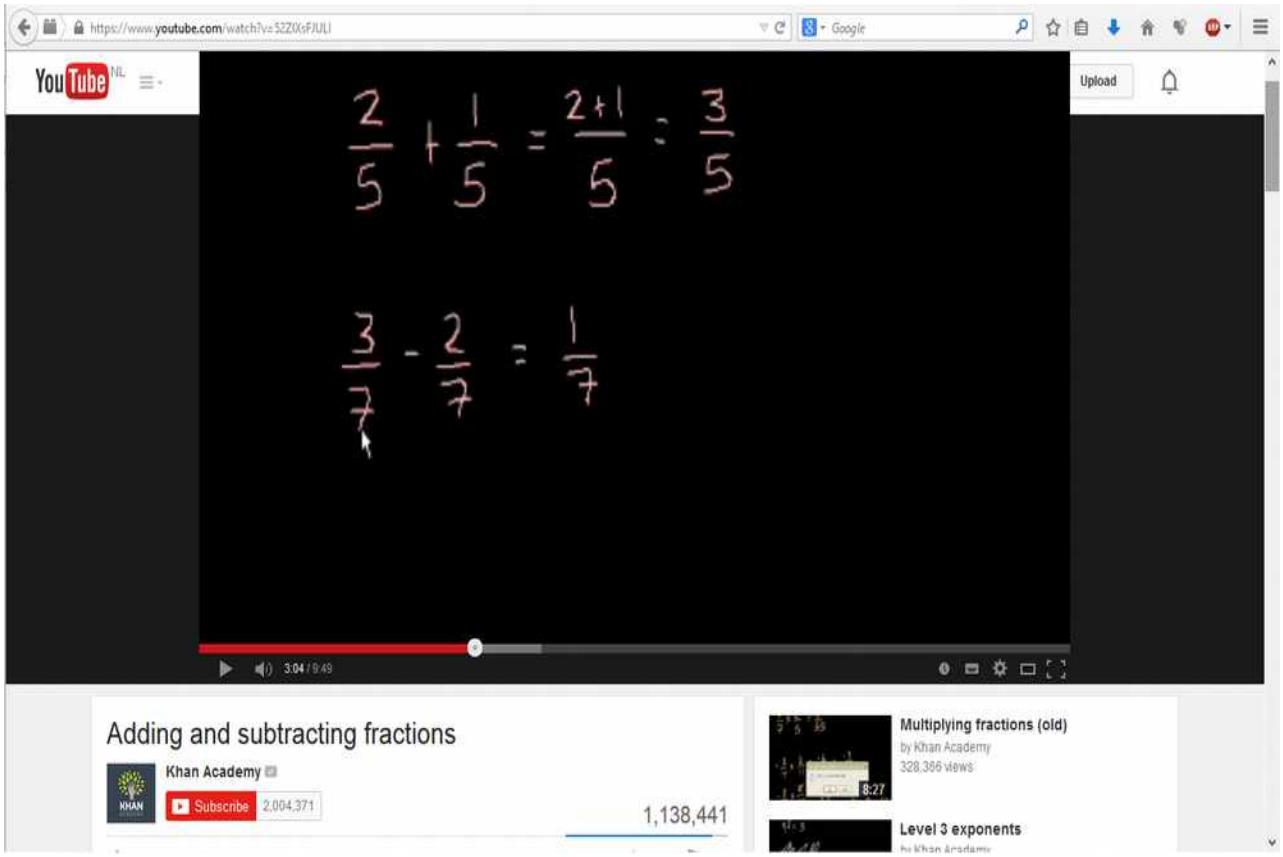
So there's a bit of an issue here, however, the internet seems to offer an outcome to some extent. Access to information namely has never been so widespread. Libraries have offered information but not to the general public until recently and universities, especially if there is a tuition fee involved, are hard to get into. But now, with a stable internet connection, you can learn anything from any location. MIT, YALE, Harvard, the biggest universities put whole courses online, there are tutorials for almost everything from economics to coding to knitting. For the younger generations there is Khan Academy, which grew out of YouTube. The story goes like this: an uncle was tutoring his nephews online by posting videos about algebra, physics and whatever the kids were learning at school, and he explained all this subjects in simple language and clear drawings to them, as you see on the printscreen below, and he did it so the nephews

46 "Information wants to be free" is a slogan of technology activists invoked against limiting access to information. According to criticism of intellectual property rights, the system of governmental control of exclusivity is in conflict with the development of a public domain of information. The iconic phrase is attributed to Stewart Brand who, in the late 1960s, founded the Whole Earth Catalog and argued that technology could be liberating rather than oppressing. From Wikipedia

47 http://www.ted.com/talks/ken_robinson_says_schools_kill_creativity?language=en TED conference, Ken Robinson: How schools kill creativity

48 https://www.YouTube.com/watch?v=u9hauSrihYQ - Why do we ask questions? Michael "Vsauce" Stevens at TEDxVienna

would understand their school assignments better.



The videos became an extreme success, so much so that in time these videos grew out online to a global, non-profit organisation at https://www.khanacademy.org/ and are adopted more and more often (especially in the US) as a part of the curriculum and recommended to students to use at home. Which turned around the curriculum: kids can watch the tutorial at home and then in class they would do what used to be homework, apply what they have learned, and ask questions in the process of using the learnt information.

It works, because it teaches kids at their own pace, which has already proven successful in some educational systems, like the Montessori system, but the digital tutorials enhance it. Kids are not thought to remember snippets of information, but to think, to know where to look for information. Kids can rewind the lessons and don't get stigmatized for not understanding the lessons in one go, they can do it privately, without the prying eyes of teachers and classmates. Kids now interact in the class and they can learn at home at their own pace. The "one size fits all" has been replaced and the software gives insight in what kids struggle with. Peers can tutor peers, which is one of the most valuable and effective methods of learning.

There are many initiatives to provide the public with information. There is Wikipedia, the open source encyclopedia edited by users, open access publishing[49] in the science community

49 In this version the publisher and the writer or the article pay for the costs of publishing and the reader gets free access to the content, without having to pay any subscription fees.

is becoming more and more popular.

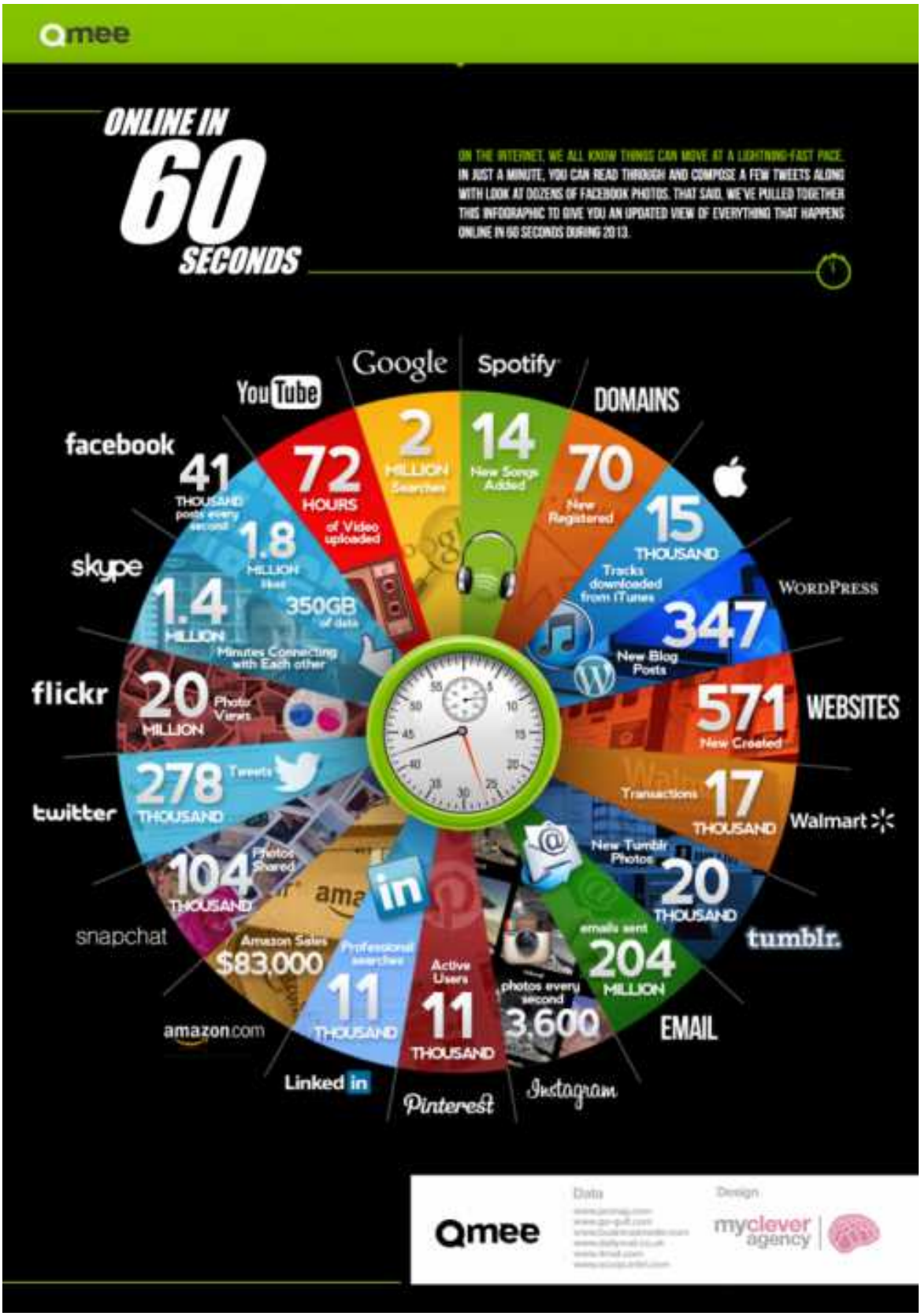
The Gutenberg project is digitalizing all books in the public domain and the failed Google Books project wanted to digitalize *all* books – irrelevant of copyrights. Which obviously didn't go down well since writers and publishers live from the revenues.

There is an increasing trend to try to find out more about what is hidden in databases, to get open data, open data from governments. We also generate information that governments and intelligence agencies like the NSA collects, or that corporations collect, such as mobile service providers, Google, Facebook, and other platforms, marketing agencies – and we should have the right to know what they know about us.

So there is a promise that we can know so much that it's hard to even imagine it. It's insane how much there is to know and how easy it is to access all this information, - that is all the information that is not locked away in databases[50]. The absolute amount of information has been more than what we could process in a lifetime since a very long time. Since around 1500 A.D. it's literally impossible to read all the books that have been written[51] (in the English language) – but now we have arrived to an age when the stream of information is practically endless and when it's impossible to keep up with everything.

The below infographic will give an indication of the scale, although it is now two years old, and sharing has certainly grown another order of magnitude.

50 Of course there is even more that cannot be accessed, more about that later.
51 http://what-if.xkcd.com/76/



With this much information around, we indulge. We overindulge. We can't resist the constant pinging, so we become information junkies, and introduce nouns into the dictionary such as *infoglut.* It stands for receiving or gathering an indigestible or incomprehensible amount of information all at once. As we do.

How do we deal with all this information?

We want to arrange it. Organize it, categorize it, bookmark it, index it, tag it, put it into folders – so we can find it and use it, draw conclusions and create knowledge from information.

The structural undertakings to organize ideas was historically the task of libraries. Some libraries date back as far as 2600 BC, a collection of clay tablets in cuneiform script in a temple, but the first big library was that of Alexandria which was established in the 3rd century BC, and burnt down during the Roman conquest in 30 BC.

The Encyclopedists in the 18th century France believed that the whole of human knowledge could catalogued. A lot of information has been generated by the Enlightenment and every collection needs to be organized. It was an idea of the editors that if civilization should by entirely destroyed, mankind might turn to their volumes to learn to reconstruct it. No other collection of general information so large and so useful has been until then in existence. Some of the Encyclopedists were prone to take their firm and bold philosophy into their writings,[52] which made the interpretation of the world, and science as such very much centered and rooted in Europe. This was in turn imported to the US and came to dominate the world in general. Knowledge *is* power, making definitions and deciding what the "facts are", writing history has influence on many decisions that are taken.

The 21th century counterpart, Wikipedia is a never seen and totally unexpected phenomenon. This encyclopedia is built by volunteers, anyone can contribute – and they do. No one would have thought that people would want to spend their free time on fact checking, writing articles, constructing entries. But we do. A researcher quipped, if you want to do research on a topic you are no expert in, you can put up a Wikipedia page about it, and fill the page with nonsense. Leave it a few days and when you come back you can harvest what the fairies have written out for you. And it's amazingly true, Wikipedia has the same rate of mistakes as any encyclopedia, only it's updated more frequently and has a lot more entries.

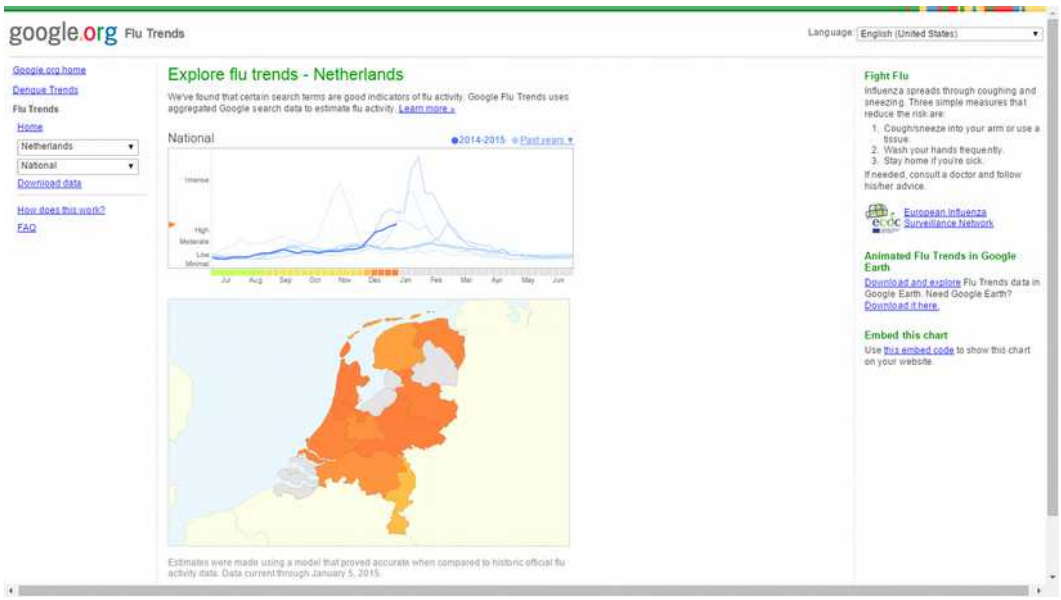
There is a long pre-history to the internet and many ongoing efforts where knowledge is being organized. I won't go too deep into these various projects, but just a brief and by no means complete list is:

- *Paul Otlet's Mundaneum*, an institution created in 1910, following an initiative begun in 1895. He intended to catalogue all the existing knowledge in the world.
- *H. G. Wells' essay "World Brain"*, on his vision of a new, free, synthetic, authoritative, permanent "World Encyclopaedia" that could help world citizens make the best use of universal information resources and make the best contribution to world peace.

52 http://www.iep.utm.edu/encyclop/

- *Ted Nelson's Xanadu project* that he has been developing since 1960, an online space that would show the connections between texts, an with which he actually invented hypertext
- *the Whole Earth Catalogue* – a counterculture magazine published between 1968 and 1972, with the slogan the slogan "access to tools" in which readers would discuss and recommend eachother products for self-sufficiency, ecology, alternative education, "do it yourself" (DIY) and holism. Steve Jobs would later call it, 'Google in paperback form' and quoted its slogan: Stay hungry, stay foolish.
- *the Google Books project* – in which Google wanted to digitalize and distribute online *all* books ever printed. The project failed because it's a commercial undertaking, and Google scanned books without consent from the owners. It did stimulate governments and libraries around the world to work together.
- Wolfram Alpha, an answer engine developed by Wolfram Research, and released in 2009, which doesn't return a random list of answers as search engines do, rather calculates the answer to the question and returns "curated data".

And then the Information that needed to be organized became too much to be catalogued. So Google decided for a very different approach and started to index and rank a site's popularity, and now they are adding authenticity factors as well. Their core idea was to organize the worlds information and make it accessible[53]. Which is... daunting. But they are pretty well on their way.



Google's intention is, as they proclaim, to use information to make us all live a better life, like for example in flu trends, https://www.google.org/flutrends where they use search data from the certain region to predict the outbreak of flu epidemics.

Some argue that this type of dealing with knowledge is very

53 IPO letter, owner's manual: https://investor.google.com/corporate/2004/ipo-founders-letter.html

right brain hemisphere-like, very masculine, and due to us learning to write and read, which has unproportionally activated the right hemisphere. Leonard Shlain in his book The Alphabet vs The Goddess[54] argues hat literacy reinforced the brain's linear, abstract, predominantly masculine left hemisphere at the expense of the holistic, iconic feminine right one. This shift upset the balance between men and women initiating the disappearance of goddesses, the abhorrence of images, and, in literacy's early stages, the decline of women's political status. Patriarchy and misogyny followed. (…) The love of Mary, Chivalry, and courtly love arose during the illiterate Dark Ages and plummeted after the invention of the printing press in the Renaissance.

Shlain goes on to describe the colossal shift he calls the Iconic Revolution, that began in the 19th century. The invention of photography and the discovery of electromagnetism combined to bring us film, television, computers, and graphic advertising; all of which are based on images. Shlain foresees that increasing reliance on right brain pattern recognition instead of left brain linear sequence will move culture toward equilibrium between the two hemispheres, between masculine and feminine, between word and image.

I am ready to believe this, but not only the images, but also the whole of the internet activates a more connected and complex thinking: because ideas can meet and mate online, the whole process of discovery and inventions is accelerating.

Others argue that this indexed and relevant search tailored to the individual doesn't leave room for serendipity, for searching for something but finding in the process something completely different which is probably even more relevant that one could have wished for. It's like going in to look for needle in the haystack and rolling out with the farmers daughter. Through happy coincidences, through looking for something but finding something else many great discoveries were made – from x-rays to vitamin C. Too much efficiency could threaten our creative processes. But luckily surprises haven't completely disappeared yet.

54 http://www.alphabetvsgoddess.com/

However not having enough control over search results also confronts us with problems. Finding information what you were not looking for is a new nightmare for parents – and it's also a lot for children to deal with. There is so much porn, scammers, cyberbullies or worse, just a click away, how to prepare children or how can it filtered? Tumblr has blogs of fluffy kittens and two clicks away it's very explicit content, without age warning. As one user on the techblog slashdot.org says:

> People need to understand that today's kids have grown up with this stuff, they are intuitively familiar with it in the way we never will be - I was writing games in assembly language at age 12, but when I need to know how to do something on a phone I ask my kids, its quicker than Google. We will never out control or outsmart our kids on tech, best we can do is pass on our experience so they are prepared, and they'll still catch us out.

So what next? Probably there will be many changes in how information is organised, how search engines work. One idea from Silicon valley is that "social search" should be the next thing[55]. That we are not looking for the right webpage but for the right person who can answer the question. Basically the wisdom of peers and friends. Which ties in with the trustworthiness of peer and community information. This could give rise to even more importance of global social networks.

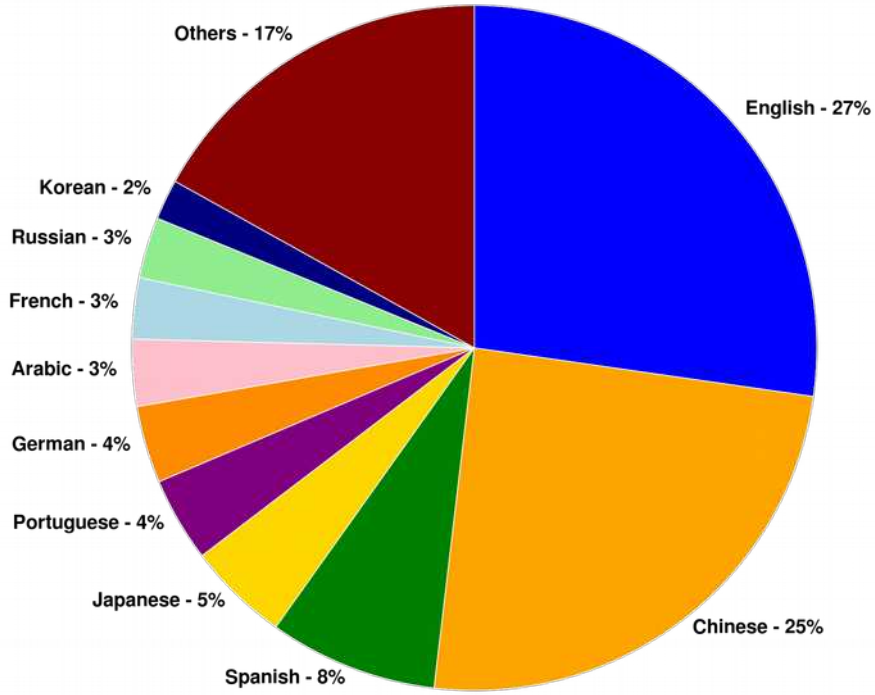
Or maybe the "semantic web" is next? The idea comes from the inventor of the World Wide Web and his colleagues, and this web would interpret information on the web. It would understand the contents of the websites deeper. Data could be linked together and would reveal relations, correlations, implied information. A different search would be possible and the returned results could be endlessly more useful as we could ask more complex questions. Now we can ask Netflix what to watch next, with this we would know where to buy the best house for our needs.

These results could be of amazing value but there are many problems, because natural language is vague. Young or tall are relative concepts, to name a few. But who knows what things will look like in a decade.

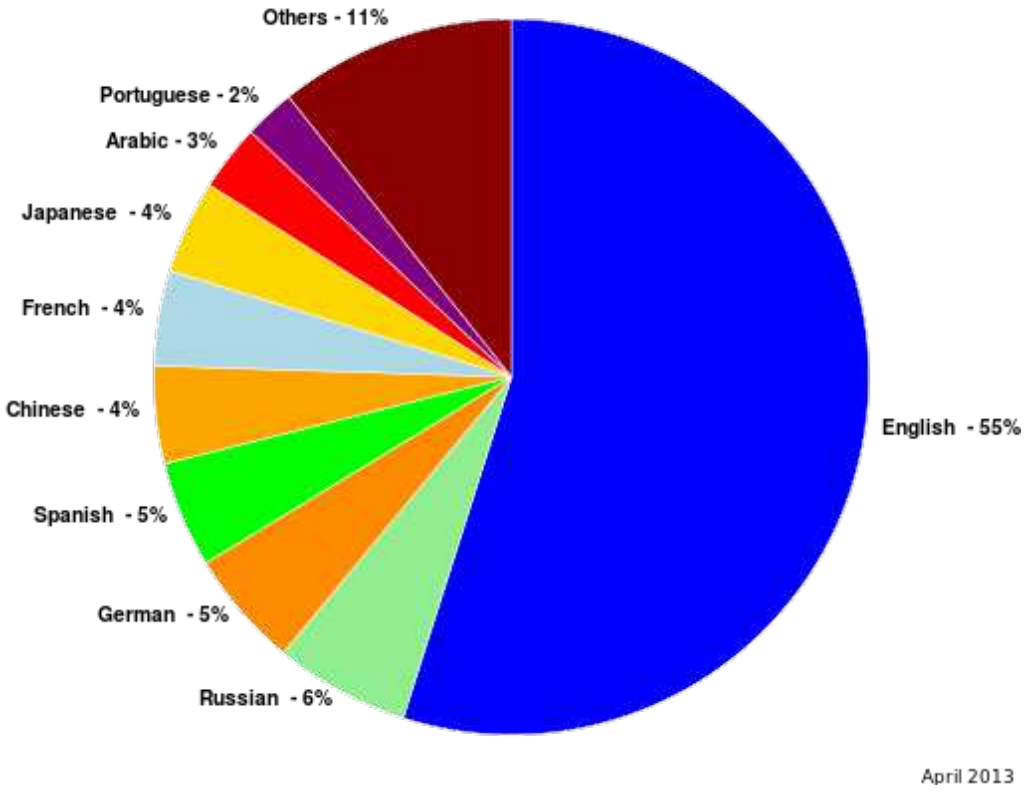
In the meanwhile the internet is created by its users. And it's a very multinational environment.

Internet usage by language:

55 https://www.YouTube.com/watch?v=7vPJT5KZLtM at 40:00



Websites by content language



Since there is an urge to reach a bigger audience and to understand eachother, information also seems to prefer one language.

What effect does information have on us?

In his book The Shallows, Nicholas Carr fears that the way we take in information, the fast paced, distracted environment of the internet, doesn't allow for any deep learning[56].

We used to read, and reading was an activity that needed our concentration for hours, that engaged our brains – as a matter of fact in a very unnatural way. We are hardwired to being alert and aware of our surroundings but books make us forget, which is a very important function of the book[57]. Carr claims that we don't focus anymore. Going back to prehistoric age, our brain had to scan the environment, we were constantly on the lookout for predators, so we had to pay attention to the rustling of the leaves: it might be a tiger and our brain, to motivate us to find out what it is, would also release dopamine when finding out that information. Forward some years and now there is just so much information to find out, that we get drowned and overstimulated. On the internet every interruption is interrupted by another interruption. True, each click is a decision, but it is sometimes not the conscious decision of an intellectual being, but the decision of a lab rat that can't resist the temptation of the sugarmachine: hit me again! It makes us compulsive. Compulsively checking our email, our facebook, glancing at our smart phones.

Nicholas Carr argues that if we loose control about attention by splitting up our attention, we can't learn. The information from the short term memory has no time to be transferred to the long term memory because we are distracted by new and different pieces of information and learning (also known as memory consolidation) can't take place. Which is not good because we need that to create connections between different kinds of information.

Findings seem to confirm his conclusions. Webdesigners know that text should be reduced to a minimal. Everything should be intuitive, straight forward. The young, according to market research on the internet, don't read more than one line of text instructions online. Interfaces should be "intuitive", clear or self-explanatory. Although this can also be declared by the current abundance: if there is so much to choose from, why not choose for the path of the least resistance? The older generations are used to reading all the text, but if there is an option to use a site or app that is user friendly without much explanation, then from those competing for our attention why not let the smoothest one win?

Why would it be a problem if we could outsource our mind?

This is what machines are for, to do the boring bits of mental effort, like remembering. Human recollection is really not that great, machines can do it so much better. And faster. They don't come back with a blurry image of a memory of a teacher from

56 https://www.YouTube.com/watch?v=cKaWJ72x1rI#t=103 and https://terenceblake.wordpress.com/2013/05/08/nicholas-carrs-the-shallows-cartoon-summary/

57 Sontag, Susan (1992) The Vulcano Lover: A Romance

primary school in the wrong context, what's his face again...?

By outsourcing however, Carr says, you shortchange our intellect. If that's the way you think, you think like a computer. It takes focus to create. You have to control your mind to make decisions, to think creative, think critically.

Then again some people are just very keen to record their lives as is, to gain what is called “total recall” and not only digitalize all that we see, but also record heartbeat, medical information, and what have you.

It is also interesting to point out in the same breath that in the human mind forgetting is also a feature and not a bug. What we remember and how we remember events become part of the identity we build for ourselves. Who really wants to see that his first love was actually not that cute and that the childhood memories look pretty... off colour. Around the issues of what to remember and what to forget there are also some decisions waiting to be made.

It is hard to say if our brains are really getting fried or just being altered by the different input and we are shifting towards being able to process more complex visual and sensory input. What might be an important point to consider, is that information is not equal to knowledge and certainly not equal to wisdom. Those are decisions and conclusions a person makes. However that was also the case with books. Reading books, consuming all the information itself didn't render one wise. It is the contemplation during or after the reading that can build up to knowledge and wisdom. What the internet has compared to the library is that it's an even bigger platform, that even more information – and I mean rich, dense and relevant information – is available to the seeker – along with the temptation to skip the time for contemplation and go on straight to the next piece of information available in an endless flow.

As said, there is an abundance of rich, valuable information. Arguably our attention span has shortened, and especially the attention of the young is becoming fragmented. We expect self-explanatory, evident and easily accessible information. This can have also happened because we are being spoiled. We are used to the instant availability of multilayered and relevant information our tolerance for low density/ hard to process/ seemingly uninteresting information sources has gone down. This is very natural. If there is a choice, we will go for the juiciest, prettiest peach, all peach eating animals would. We scan pages, because we don't want to waste time reading through anything irrelevant, but while we scan we are also aware of what we are looking for, and we scan many more pages than any generations before us. We are looking for the raisins.

A trending shift in information intake is that until now text and websites were the standard search results, the new search engine that is coming up strongest, is YouTube and we would rather search for a video on a topic than a website or any static text. Which is also bringing back the human into the equation because we apparently rather listen to a person explaining something than read it as plain text.

If we ever stood on the shoulder of giants, now we are climbing right up to the gods, because currently we are just one email away from practically anyone, and everything we can think of is at our fingertips – and more. And if we choose to fiddle with it, we can go even deeper, which is inviting us to engage on the one hand, and is causing a crippling boredom and the scattering of attention on the other. It is exiting to have so much information, distraction, and impulses ready at any time, but it is overwhelming at the same time, and it's easy to drown if one isn't careful. But if one is, it can enhance our thinking as it was never before.

We are claiming our culture back, this is again the age of the read-write culture. Once again we are free to create to remix what has been handed down by the older generations, to create and actively participate in our culture. As far as copyright allows it. But we do create. From a "like" to pictures to memes to websites, videos and music we create an unheard of amounts on a daily basis.

Creativity has become not only a buzz word, but a very important issue. We live in exponential times, the population is exploding, new technological inventions are made at a drop of the hat, in five years so many things change, there is no way overseeing it – and more importantly, there is no way seeing what the consequences are. We learn on the go, we adjust while flying and when you enroll at a university, what you have learned in the first year might become obsolete and outdated by the time you receive your degree. So being flexible, creative and able to learn and adapt has never been so important. Natural selection gives species a fair warning in time, but in our technical evolution the pace is pretty high. So creativity needs to be part of our daily going about.

"Hacking" has become an important new attitude. Hackers open boxes to see what is inside. They go through the software to see what else it can do and how you can make the machine do other things than what it's supposed to do. "Life hacking" tips are terribly popular and are abundant on the net and help you a lot with your life. The latter, just as the former, is nothing more than what we have always done: housewife discovering how practical it is to use coffee ground to make sure your drain never gets clogged, to dad who is in the garage DIY-ing away in the weekend. Only now more information can be shared an there are a lot more boxes to open.

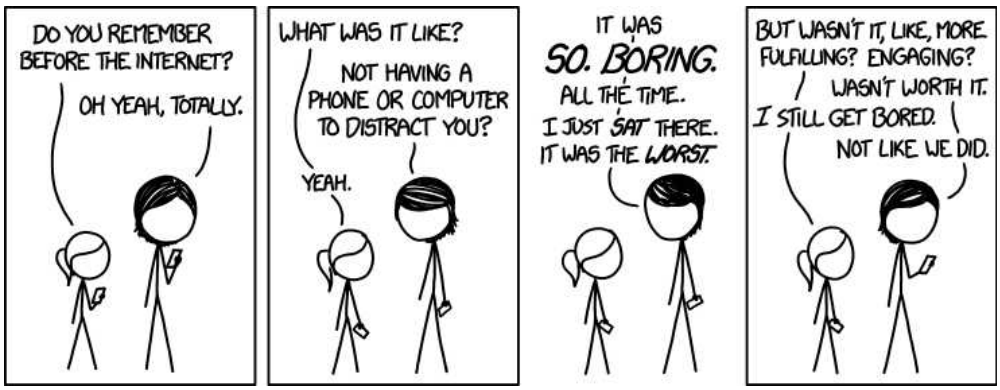
The problem with creativity is however that it involves risk and the chance that you're wrong, and since the stakes seem very high now, it's pretty risky to take risks. One wrong software on the stockmarkets, and we are done. But it has to happen in order to satisfy the imperative of our economy that it should grow, and it does happen: those who are rich, young or bold enough to take risks, are creative and take risks. Start-up culture flourishes in Silicon Valley, big companies invest in all kinds of research, buy start-ups, try all kinds of things. Information and data, especially big data should revolutionize our world, and make sure

we live even better than ever before.

Which it certainly has the potential to do. Climate change is such a gradual shift that it's too big for any one generation to behold, but we now have the computational power and all huge quantities of information (big data) that enables us to scientifically prove the change in the climate[58].

The problem with all this information on an individual level is however boredom. As the philosophers Barbara Dalle Pezze and Carlo Salzani put it in their essay 'The Delicate Monster' (2009):

> Boredom is not an inherent quality of the human condition, but rather it has a history, which began around the 18th century and embraced the whole Western world, and which presents an evolution from the 18th to the 21st century.



Or as drawn by Randall Munroe from xkcd.com

In my opinion the underlying issue is not technology as such, because technology as such has álways been around, but our sudden and strong alienation from a more holistic way of thinking, a disruption in our connectedness with our work, our community/ies, and with the whole planet. In this disconnectedness the the internet might bring some change, if applied wisely. However it is certainly true that with all the possibilities it's harder to choose, the meaning of our life is harder to be discerned from so much input.

Knowledge causes uncertainty, and the more you know, the more you realize how little you know. The more you learn the more you see how much there is to learn, how many aspects and interpretations each fact can have and this leads to relative thinking and to a certain amount of uncertainty. We are not very good with dealing with uncertainty, so many of us might try to deal with it in disruptive ways or distract ourselves from the problems we can't deal with.

With all it's distractions what the internet doesn't allow – if one is not careful – is time for contemplation, for letting things settle. It gives no space for reflection. We are carried from one click to the next, fill our heads with infotainment which doesn't always reflect how life works offline, which can result in drifting deeper and deeper into wonderland, into the realm of

58 https://www.YouTube.com/watch?v=1M1BPz0nY3s#t=130 – The IdeaChannel, PBS, Is the Discovery of Global Warming Our Greatest Scientific Achievement?

unicorns and funny cats.

The internet contains of a vast amount of cats, and though no one is quite sure why, there are various theories how they got there[59]. Also the internet contains a vast amount of porn. No questions asked there. Rule[60] nr 34 of the Internet, as set up on the /b board of the notorious 4chan forum, is that "if it exists, there is porn of it". No exceptions. Which is probably true, there is a lot of demand in this area, and as rule 38 will also demonstrate, ("No real limits of any kind apply here – not even the sky") almost anything is possible on the internet.

While the catoverload has no problematic effect observed so far, the problem with instant access to porn is that whereas you can't learn too much, one can certainly be overstimulated sexually[61]. This became painfully clear after high-speed internet entered the households and suddenly the cases of erectile dysfunction skyrocketed. So accessibility in this field is an issue that the endlessness of supply deeply aggravates. There is infinite novelty on demand, just a click away, so how to say no to this information, to instant gratification? Even at cost of an offline lovelife?

Not only in the realm of porn, but on all fronts information keeps seducing us: just one more interesting page, just one more link, just one more cat video, one more click, just one more level in this game, and then I get on with my life, or go to sleep since it's already 3 a.m.[62] I have personally lost years to stumbleupon.com

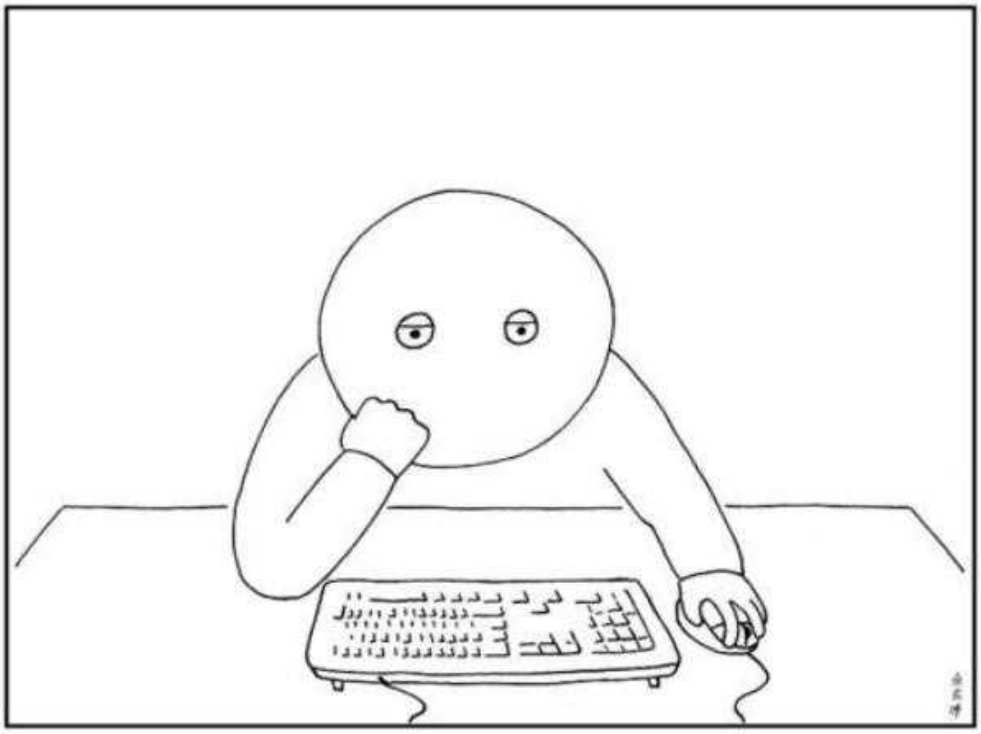
And while our brain is exploding with dopamine and wander across icebergs, computer tidbits, naked bodies and catvideos, we experience it without much motion.

59 My favourite being that the toxoplasmosis parasite in cats causes behavioural changes in 33% of all humans and makes them irrationally attrackted to cats – also to visual representations of cats. This would explain why we like to film our cats and why other love to watch them even online.

60 http://knowyourmeme.com/memes/rules-of-the-internet

61 https://www.YouTube.com/watch?v=wSF82AwSDiU - The great porn experiment | Gary Wilson | TEDxGlasgow

62 If you don't believe me, sign up for stumbleupon.com – and loose years of your life to the internet. Easily.



This is what you look like right now.

We are definitely moved, just not with our whole body. Our experiences are real, but not embodied, it all takes place directly in the head.

Is there such a thing as Too Much Information? Is the internet a library on acid? Did information take the place of LSD of the sixties America, the magic substance whose consumption could transform the world and are we trying to get high on information[63]? Or is all this information just something else altogether? Can we drown? How should we navigate then? Each click is a decision we make and we make these decisions very fast. The internet also tends to engage our brain to a large extent and browsing becomes very immersive, hours can pass without us noticing, as we all know, and still it doesn't eradicate boredom. Information can also function as mere distraction and can make the unprepared confused, overwhelmed, and feel at a loss, because where to begin in such a big vast see of information?

We are overstimulated but not satisfied. It creates dopamine in our brains but that also means that we keep looking for the next hit, because that is how our brain works.

Still, I don't think information should be blamed, rather than our ability to deal with it, our urge for overload and not recongizing when it becomes destructive. Corporations capitalize on our inability to say no to sensational pieces of information and create so called click baits, links in form of headlines, aiming to generate more advertisement revenue, generally at the expense of quality or accuracy:

63 http://aeon.co/magazine/technology/the-problem-with-too-much-information/

from xkcd.com

This is one more reason to learn *about* information, how we react to it, and to categorize it and just like we learn to eat healthy we should learn how to feed our heads and what to feed our heads with. The abundance of information will have lasting

effects, it is organizing our society, our every day lives, how we think, how we behave, what we work.

Information society in the Information Age

Information society is a loose term loose term for a society where the creation, distribution, use, integration and manipulation of information is a significant economic, political, and cultural activity. Similar concepts are the post-industrial society (Daniel Bell), post-fordism, post-modern society, knowledge society, telematic society, Information Revolution, liquid modernity, and network society (Manuel Castells)[64], all trying to point out the increasingly important role information in playing in the everyday of a given society.

Constant learning is good, but there is a vast variety of information out there. Not only educational videos and tutorials but practically everything anyone could ever think of is out there. Everything. And as we have seen, what has been seen cannot be unseen[65].

And we haven't quite learnt yet how to deal with all this information and we have no certain idea what it will do to us.

It's about time to insert the compulsory Marshall McLuhan quote to wrap up to a conclusion on what the internet is doing to us:

"The medium is the message[66]".

He said this in in his book Understanding Media: The Extensions of Man, published in 1964, and it still holds true. The way we communicate is what we communicate. The internet is decentralized, networked, intertwingled, ubiquitous, many to many, fragmented but still one. And we are changing. "All media work us over completely. They are so pervasive in their personal, political, economic, aesthetic, psychological, moral, ethical, and social consequences that they leave no part of us untouched, unaffected, unaltered."

64 Definition from Wikipedia https://en.wikipedia.org/wiki/Information_society

65 This image here is, by the way, a meme, either an iconic image, or a catchphrase or a combination of those, but the idea is that the idea cannot be traced to one unique person and is rephrased, reshapen, reused by other anonymous makers.

66 McLuhan, Marshall (1964), Understanding Media

What is valuable information?

Of course the value of information can be measured from different angles. Popularity seems to be the most used indicator of value, Google ranks those pages higher that get more other sites linking to them. But that is not enough criteria, they are looking into the possibility to rank searches also based on truthfulness.

Popularity however is a good indicator for advertisers, who want to reach as many people though that is also changing: they want to target the potential customers. Alexa[67] is watching the traffic online. The top 25 websites at the beginning of 2015 are:

1 Google.com
2 Facebook.com
3 Youtube.com
4 Baidu.com (The leading Chinese language search engine, provides "simple and reliable" search)
5 Yahoo.com
6 Wikipedia.org
7 Amazon.com
8 Twitter.com
9 Qq.com (China's largest and most used Internet service portal)
10 Taobao.com Launched in May 2003, Taobao Marketplace
11 Google.co.in
12 Linkedin.com
13 Live.com (Search engine from Microsoft.)
14 Sina.com.cn
15 Weibo.com
16 Yahoo.co.jp
17 Tmall.com Shopping site
18 Google.co.jp
19 Ebay.com
20 Google.de
21 Blogspot.com
22 Hao123.com
23 Reddit.com
24 Bing.com
25 Google.co.uk

Maybe because our search results are so relevant or because the computers memory is so excellent, or because most actions on the computer can be controlled and repeated, we tend to look upon the internet as a magical combination between a library and a supermarket that always has the info you need in stock, returns the relevant results for your wishes, and which somehow automatically archives or refills information as well. No need to store it. If it's out there, up in the cloud or wherever, we assume that it will always stay there, that we can always access it later. Digital information needs no further archivation. We should rather digitizing everything and keep it in a compact

67 Alexa Internet, Inc. is a California-based subsidiary company of Amazon.com which provides commercial web traffic data. Founded as an independent company in 1996, Alexa was acquired by Amazon in 1999.

digital form.

This "everything" has become so excessive in its dimensions that it's beyond our imagination. With petabytes[68] around and big data, numbers have become meaningless. One artist who works with that it Chris Jordan. His photoseries Running the Numbers visualizes these magnitudes. Below the picture called Plastic Bags[69] which is made of the picture of 60,000 plastic bags, the number of bags used in the US every five seconds.

All this stuff is around and there is even more digital stuff and we have to make decisions on what is worth keeping and what can go. Whole libraries are shut down and shredded, often also with the aim to save money. One example of these considerations is the KIT, the Royal Tropical Institute library in Amsterdam, and with it everything in the field of anthropology, science and health sciences that has been learnt from Holland having colonies, would go. The very last moment the library was bought by the library of Alexandria so the books now live on there.

Another indicator would be relevance. Relevance used to be decided by mediators, like editors, journalists, librarians, but now since the storage costs are nearing zero, there is no need to delete. The more, since "relevance" can change overtime and we never know what one might want to know or research further down the road.

Once we decided to keep the digital stuff, we still have to realize that it's easier said than done. Hardware wares out, software changes. An insightful YouTube comment says that the internet is rather like an ecosystem. Just like the world, it can be documented, but we can't right click+save it all for later. Which is fair enough to say. We might take a snapshot, or store

68 1 PB = 1000000000000000B = 1015bytes = 1000terabytes
69 http://www.chrisjordan.com/gallery/rtn/#plastic-bags

large quantities of data, but not the "Internet" as such. Organic is just as difficult to preserve, and digital is also in flux and subject to change.

Presumably new ways of archiving the digital will emerge in the future and then the next question can be also given a thought: where should we keep all this stuff? Who runs the knowledge-bank?

The whole idea of the internet is that the collective knowledge is somehow decentralized. If we put everything in the cloud that is actually re-centralizing the total human knowledge capital, and that also has its dangers, since knowledge and information is power and if centralized, it's easy to abuse.

The web is also our collective consciousness, and we have seen how shapeshifting it can be. Since 1984 we know that he who controls the past controls the future and that he who controls the present controls the past[70]. Now he, who can update a website can change the past. So when a press release appeared in 2003 on the site of the US government, whitehouse.gov, stating that "President Bush Announces that Combat Operations in Iraq Have Ended" – and was changed to "President Bush Announces that **Major** Combat Operations in Iraq Have Ended", without releasing a new announcement or update mentioning this rather significant detail[71].

The same problem presents itself in the new forms information is meeting the viewer eyeballs. Because we are getting so addicted to the latest, newest, cuttingest edgest, the form that has emerged, is that of the blog, that is basically a dynamic web page where the new posts are placed at the top of the page. This form has been adapted by social networking sites and all kinds of information-rich environments, and it is called the news feed, or a stream. If functions in a very similar way it would in a real "stream": the information goes down and disappears with time, unless it is caught by someone, in which case it hangs on until it is commented upon, etc.

However, this type of information organisation is totally democratic and non-hierarchical, but it also means that it is really hard to trace back information from the past and it is virtually impossible to use it as an archive. No one will click through pages and pages of a blog or any profile, except in extreme cases, such as war or love. Or art of course.

70 Slogan of the Ingsoc (Newspeak for English Socialism or the English Socialist Party), the totalitarian government of Oceania in George Orwell's dystopian novel Nineteen Eighty-Four. Other slogans will also sound familiar: "War is Peace; Freedom is Slavery; Ignorance is Strength." and "Big Brother is Watching You."

71 More on the subject at http://en.wikipedia.org/wiki/Mission_Accomplished_speech and https://www.YouTube.com/watch?v=JsL1TADosN0

3 to 5 – from Information to Collectivity

Via diversity, I would say. Intelligence is divers. Creativity is divers. It takes all kinds to make the world go round and the internet is a platform that enables us to combine powers. But it also unifies us, into a collective consciousness.

It also means the death of the author because in a collaboration it's sometimes hard to tell who said what and where an idea originates from. Then again alone you might go faster, but together you get further. Though it certainly ruins the idea of "universal truth", "perfect" and "certain". For every argument there is a counter argument and for every legitimate information a hoax. And even if the division is not that clear, it can be still a tough decision, even after reading a lot of websites, whether to let your baby have vaccines or no.

Choices have never been easy, but now the peer pressure comes from online, offline, everywhere, and since we can educate ourselves endlessly, the decision making process can become difficult, to say the least.

The up-side of the story is however that the desperate loneliness, the isolation of the not-understood can be eradicated. As C.G. Jung says, loneliness does not come from having no people about one, but from being unable to communicate the things that seem important to oneself, or from holding certain views which others find inadmissible. Now on the internet whatever it is that tickles your pickle, you will find your peers. It is only your imagination and lack of browsing skills that will limit you finding those groups who will have similar interests – and if you don't find them, you can always start a community and within the shortest of times find your peers who will flock to your peculiar taste of interest. Really. Anything from ASMR packaging videos to huge unboxing hits.

One beautiful example of how isolations is broken by the internet is the It Gets Better Project, which coloumnist Dan Savage and his boyfriend set up to keep the morale of LGBTQ youth high, to be able to sit it out, to know that they're not alone, and when they're grown up and legally allowed to make their own decisions, move to a different city or just tell people to mind their own business, all the bullying they went through won't matter, and it will all get better. It has become a world wide movement for which more than 50.000 videos have been created by users and well known figures such as Barack Obama, Nancy Pelosi and Pixar, Google and Facebook.

This possibility to hear more voices has become sort of a standard expectation. As Marti Hearst computer scientist writes, and as it will be recognized by many, when he searches a receipt online he doesn't only expect to find the list of ingredients but also wants to know what others think of it, what they might have added, what salad they made to go with it, which family members liked it or didn't. And with the addition of this broad scala of new points of views he has become a better cook.

We are now constantly checking the other opinions. If something happens in the news, we also read what others think of

it, we consult others to adjust our views, expectations and opinions.

An other, not so happy consequence is that this amount of people actively talking about themselves is unprecedented. This much data is a walhalla for both marketeers and for scientists. Data is power. We are being tested from every side, microtests are being executed on all so many websites: how do we get people to come back more often? What do they react to? What makes them buy something? What makes visitors behave in a certain way? On the internet our attention is the currency and they want to know how to influence it, how to get us hooked, or better still, addicted.

3 => 4 How Information Gives Rise to Offline

All this information has a physical effect on us. It sucks us in, even if you don't want to.

Does it give us more identity? Are we more aware of our bodies? It is rewiring our brains for sure. Since we know that we have so much information available to us, we tend not to remember the actual facts, but the path we have to take to reach it. What is the best search term, what is the best website or the most knowledgeable tweeter we should go to for information. We are getting better at finding and organising, but potentially worse at deep focus. Although I think that one has to keep his focus to program a software or to work at an air traffic control tower or other complex jobs that we have now, so there are still some people left with focus.

All this information doesn't only effect our brains, but our whole body and also our lives - for the better and for the worse. It can lead to people going off the grid but also to urban gardening, to grass root, self organising communities. That in South-Africa a young boy can build his own windmill and generate electricity because he learnt from a library book and his own ingenuity how to do it[72]. Imagine what he could do if he had internet.

The human race made a bet, John Scott, digital historian says in a documentary on digitalisation. We thought that all our information would be digital. We put it on magnetic discs, plastic disks, put it into the care of companies that are gone now. The machines that could read it, are gone.

Just to give you an example, my mom made me a happy birthday card in 1997 which now reads as follows:

72 When he was just 14 years old, Malawian inventor William Kamkwamba built his family an electricity-generating windmill from spare parts, working from rough plans he found in a library book.

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4 aspects of the Offline: the Physical Reality, the Body, the Individual, (Dis)connecting

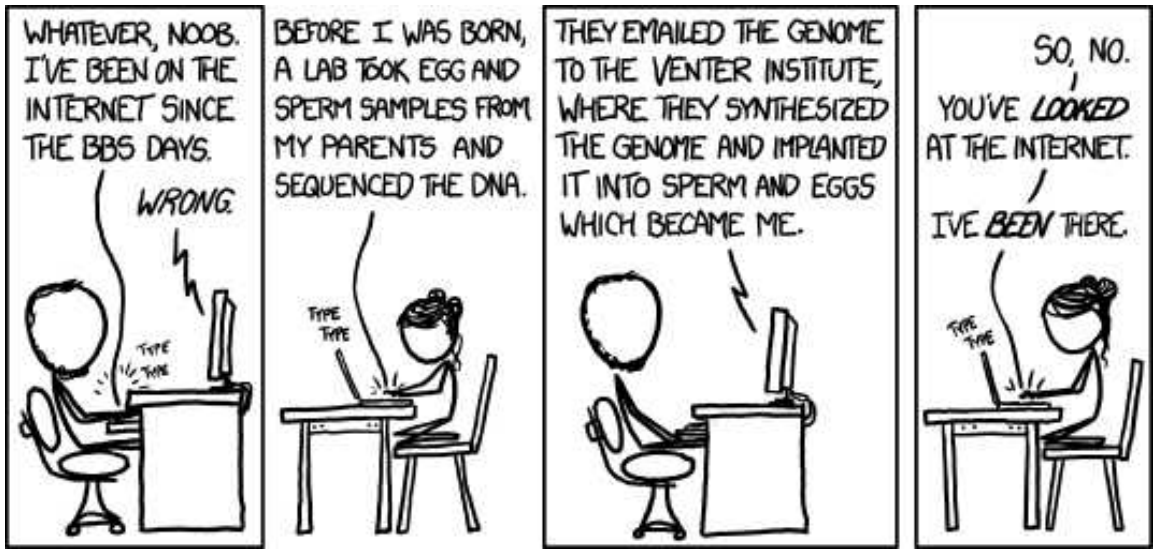
In this chapter I would like to research the questions of the individual. Our physical selves, meat space, reality, the world as wel used to know it – and our ability to connect or disconnect within the virtual realm. And the effect that the Online can have on the Offline reality.

The real world we were born into has rocks and trees and cats – and now the internet. While we grow up, we gradually learn how our body and our mind function, how society functions and how the world works in general. Now we also learn how to function Online, and this Online is more and more coming off the screen and mingling with many of our daily business that used to be stricktly offline. To name one, younger generations play online more often than offline. To name another one – each time a picture is taken, one thinks of where it could or should be posted or not.

This is a strange feedbackloop, since the whole online was created by the offline. And now the question is: is this Online real? Is there still such a thing as Offline at all?

First of all, what is Online? And when are you online? Are you only online when you are looking at a screen or are you also online when somebody posts on your facebook wall, when your are driving in your car that is connected to the net, switching your lights on using your smart phone? When you're using your smartphone to send a text message? When you take a picture with the idea that you have to post it online? When you look at something and think that it would make a great animated gif? If your phone automatically syncs your photos with your blog? Are you online if you keep your money in the bank? If you buy books online? Are the traces of your presence online (comments, likes, photos uploaded, data you generated) your online self that lives on after you are gone?

Access to many things that used to be offline are now online. You can do your groceries online. Are they then online groceries?



The lines between online and offline are blurry.

In a YouTube comment feed on the topic there is some consensus that only when you're asleep are you truly offline. Which in turn would mean that if you are awake, you are online. For many of us in the western world, this is the experience we have, also in many countries in Asia the younger generations would agree. We think in the context of the internet, we use it's infrastructure to communicate and make pictures, because we think it will be a great post, (this is so a social networksite moment! let's take a pic!) we know we don't have to remember exactly what someone said and where, as long as we know what searchterms to use to find it again. We think in instant access: how can I arrange for something now? I don't go to the second hand bookstore to see if they have a cheap copy of the book I'm looking for but I order it straight online. I don't go out to find a partner, but set up a profile on a dating site, because it's so much more efficient than fancying someone for months only to find out that he has a girlfriend. Or a boyfriend. If I don't know something, if I have a question – from relationship issues to stomach pain, the first thing that comes to my mind is "let me google that". With a small g, because it is a common verb now.

The internet changes our physical behaviour and how we conduct

our daily business, and in that sense, that it's always there as an option, it has become the essential part of our toolset.

Of course we cannot deny that there is an Offline. 60% of the world population is offline, so that is a significant number of people. 4 billion. A lot. Then again, the Online has an effect on them as well, whether they want it or not, albeit the influence can be indirect. But even if you are in the Amazon rain forest running around in traditional gear, the trees are being cut down around you for reasons decided by those who *are* online, who are in the part of the world that has internet access and are in the position to make far reaching decisions.

But maybe such a distinction between online and offline doesn't exist. It certainly doesn't for younger generations. We are more and more reliant on the internet for our survival as species, we wouldn't know how to run society without the computer anymore. Not only because the economy runs through the internet and the biggest companies are internet-related (Google, Apple, Microsoft) but also because smaller businesses and most of our communication run through it as well. Even the basic necessities such as food delivery to supermarkets would run late, be thwarted or even disabled if systems go down.

So maybe we can't go offline anymore, we just go Away From Keyboard (AFK). Or can we still choose to stay offline? If yes, what would it take? And why would we want to do that?

About the physical reality

Beside all the techno-optimism there are strong voices that warn against giving in to the uncritical acceptance of technology anywhere. They are referred to as the Luddites. The original Luddites were 19th-century English textile artisans who protested against newly developed labour-replacing machinery from 1811 to 1817. The stocking frames, spinning frames and power looms introduced during the Industrial Revolution threatened to replace the artisans with less-skilled, low-wage labourers, leaving them without work.

Today the title Luddite has gained a secondary meaning: a "Luddite" is a term describing those opposed to, or slow to adopt or incorporate industrialisation, automation, computerisation or new technologies in general into their lifestyle.

More recently, the term Neo-Luddism has emerged to describe opposition to many forms of technology. According to a manifesto drawn up by the Second Luddite Congress (April 1996; Barnesville, Ohio), Neo-Luddism is "a leaderless movement of passive resistance to consumerism and the increasingly bizarre and frightening technologies of the Computer Age."[73]

One of the most widespread manifestations of technoscepticism was a video that went viral, called Look Up[74] by Gary Turk form

73 http://en.wikipedia.org/wiki/Luddite
74 https://www.YouTube.com/watch?v=Z7dLU6fk9QY

April 2014. It is a spoken word poem illustrated with a video, posted on YouTube, detailing how looking at our screens makes us more isolated, lonely, how we miss out on life by being immersed in our digital pasttimes. How we cannot be good parents if we need an iPad to entertain our kids, and that while we are looking at the screen we are not making contact with other people. He advocates doing away with our devices so we can focus on the present, on what he would say is "real life".
The narrative of the video builds on the moment when the protagonist asks a girl for directions and they fall in love and live happily ever after – which would never have happened, had he been looking at his phone, she just would have passed him by.

The video went crazy viral, (as in 49 million views till January 2015) apparently people can relate to it very well. Nevertheless it's pretty ironic that the only way to spread the word against the internet is through the internet.

What resonates with most people, according to interviews, comments and videos that I found on the internet is that it is a common experience to see people use the screen as a shield, to look at your phone also while you are with someone else. Couples at restaurants would text friends instead of having conversations with each other. Tiffany Shlain, founder of the Webby awards, admitted in an interview that she would excuse herself from a conversation with a friend she especially came to visit in a different city to sneek off to the toilet and tweet and check her mail in secret, because she felt the urge but realized that it is rude to do that while at the table with company. At the same time we can safely assume that her friend did exactly the same while she was at the toilet.

So yes, it can get out of proportion and since the Internet is a sugar rush of exiting things going on within the reach of the hand, it's hard to disengage and be present. But it also begs the question: is this the fault of technology? If I rather text my friends than talk to my boyfriend, is it not time to split up? Or are we all turning into socially awkward creatures who are afraid of real intimacy *because* of the Internet?

This photo is captioned: "What the fuck is wrong with this guy?"

The upcoming question I think is one: should we switch then the Internet off? When? For how long? What should our relationship be to the Online?

In reaction to the Look Up video – as there were many – Dutch journalist and satirist Daan Windhorst wrote an other spoken word poem, in Dutch alas, called Look down, and as you see it coming, he elaborates on why it's all good to be sceptical but demonifying technology might be throwing the baby out with the bathwater. There is plenty to see when you look up, but looking down, into your phone has it's advantages. You can learn so many things, read literature and connect to friends at a distance. And there is online dating, which might not be conceived as magical but it is a hell of a lot more effective than standing on the corner hoping you run into Him or Her. Maybe not as effective as being introduced by friends, but therefore we have the facebookfriends of our facebookfriends to "meet".

So beside the escapism and other horribilities the internet also enables us to educate ourselves, to keep in contact regardless of geographical location, and to keep us curious and make our lives richer.

Possibly it's not the screens that are doing horrible things to us, but us finding a new form of diversion. Just like the newspaper used to be a barricade for dad, now it's the laptop or the phone – very democratically – for the whole family.

BEFORE: sure, we couldn't take pictures, but we dug ourselves into the newsfeed with the same gusto.

What might be important, though it's not much talked about as far as I know, is to notice the breach between body and mind that already exists and the internet only increases. We engage with the internet via our mind and the interface, or our physical contact with the internet is based on fingertip gestures and movements at best, or voice commands. That is not a lot of bodily activity.

With a few exceptions the biggest part of our educational system is already based on separating body from your mind. In his TED talk of Ken Robinson sheds light on that very early on schools only talk to the head of kids, and even there the exact sciences are favoured. It's maths, physics and languages that come out on top as the important subjects, liberal arts and physical exercise – let alone dance! – are not something that is considered something that should be given attention. This education system means that the “winners”, those who complete the education course with the most success are the university professors. And this university professor says, that university professors tend to be a brain that use the body as a means of transportation.

This type of public education, he says, came into being to meet the needs of industrialisation, after the 1900's. The most important topics were those thought to be the most useful for the industrial society, those that would give you a job. Now we have no idea what jobs will come into existence within 5 years. But an improportionate lot of them will probably be screen based.

The point here is that as a child grows up, especially if they are doing well in school, their life will take place in front of a screen with their mind all over "cyberspace" and not in the moment, not in their body. And being detached from physical reality can lead to a new set of problems.

However fear from "technology", from using aids and tools didn't start with the internet. As mentioned earlier, Socrates was very much worried in the 4th century BC about us loosing our ability to memorize by the spreading of literacy, and that reading will introduce forgetfullness, since people will rely on scrolls, instead of their own thoughts and memories. They would only have reminders and empty heads – thus loosing wisdom and true knowledge. He argues that subsituting outer symbols for inner memories, writing threatens to make us shallow thinkers, preventing us from achieving the intellectual depth that leads to wisdom and true happiness[75].

In the end that turned out pretty okay. As a matter of fact, our species became more organised (we were able to upkeep empires, communicate innovation in science across nations, etc.) and exponentially larger in numbers. It is very possible that nonetheless Socrates *was* right and we lost the ability our ancestors had, to access a certain type of wisdom and true happiness. Marshal McLuhan writes in his book Understanding Media that he believes that preliterate people must have enjoyed a particularly intense "sensuous involvement" with the world, and when we started to read we suffered a "considerable detachement from the feelings of emotional involvement that a nonliterate man or society would experince." Maybe, but that is a choice mankind made. We choose to extend our mental capacity, not our emotional ones. You win some, you loose some.

Books carried experiences further, and detached concepts from the experience, all in all, it stimulated abstract thinking and heigthened consciousness and a deeper focus on a very wide scale of society.

The adaptation of the technology of reading didn't go down

75 The Shallows, Nicholas Carr

easily. The questions of what to write on, how to preserve it, how to write, leaving a space between words for making it easier to read, interpuntuation and not reading aloud but reading quietly, and later the invention of the printing press were all steps along the path that led to reading and writing as we know it today. It had significant effects on our society. Our media is also who we are as a species.

There is a standardisation, an adoption trajectory, and many parallels to the emergence of the medium of the Internet. Reading has literaly changed our brains, and undoubtedly so will the internet. We shape our tools and thereafter our tools shape us, as Father John Culkin said. The printing press came with just as much controversies as the marching in of the net today.

But even those who shape technology can be sceptical or careful in certain ways, the reason why Steve Jobs didn't allowed his kids to use the iPad[76] is because he, as many of the heavy users, thought that it would be the opposite of helpful for a developing mind. And maybe he is right, and there is more to be won experiencing the world first hand before entering the realm of mental constructs and all kinds of representations, which is the Internet.

Apparently especially in Silicon Valley, there is actually a trend of tech experts and engineers who shield their kids from technology. They even send their kids to non-tech schools like the Waldorf School in Los Altos, where computers aren’t found anywhere because they only focus on hands-on learning. So one might argue that it is rather ironic, that the Steve Jobs schools would nevertheless employ the iPad for educational purpose for young children.

According to our current understanding the internet basically works in the very opposite way a book does. Reading a book is a meditative act, but it doesn't clear the mind. Readers disengage their attention from the outward flow of passing stimuli in order to engage it more deeply with an inward flow of words, ideas, and emotions. The internet scatters our attention, but makes us also interact, make decisions with each single click.

The question is if the introduction of this medium will strike a balance or will it cause – as many fear – utter chaos and the death of mankind? Since for example coding requires some focussing, going through so much information as well, I suppose we will have to deal with it and we'll have to learn to use our new tools.

For many people it is still a question how real “the virtual” is, but I assume we also have to get our terms clear and decide what we mean by “real”. We don't save a particular text message like we would have saved a hand written note in a box with other souveniers, but we are just as happy with it. It might not be as tangible, but it definitely has the same effect.

So our Online presence, the life we lead in the digital realm

76 http://nextshark.com/why-steve-jobs-didnt-let-his-kids-use-ipads-and-why-you-shouldnt-either/

– just as our presence in the analogue world – is something to be dealt with.

For some the Internet has become a way to escape from the world of rocks and trees. Even more than drugs, alcohol, or meditation, the internet is extremely suited to engage the mind and dazzle it so the user is distracted from whatever he or she doesn't wish to face. It has games and porn and cat videos, you can pretend to be studying or just go and envy your friends of facebook. There are many ways to disassociate from your life and the internet is a very good place to flee to.

Of course then there are the gradations between the extreems, many people use the internet for purposes such as to liven up their lives, to make the picture prettier for themselves, for others. The peer pressure of always having to look nice and tell everyone how fabulously you are doing extends to online: we can feel a need to proclaim online what a great life we are having. While appearances had to be kept up only while leaving the house, now it has penetrated the secure chambers and those who feel compelled, have to keep up appearances non-stop, 24/7.

In my opinion the Online is just a certain type of extention of the Offline. It is a manifestation of our mental selves, but it certainly has a feedback into the Offline and is changing us. The more since our body does not know that what our head experiences is not "real". The adrenaline that shoots through your body while gaming is very real. The dopamine that is released by a click is really entering the bloodstreams. So what is reality?

Serious theorists however argue that there is something called hyperreality, a condition where reality and the simulation of reality are indistinguisable. From Wikipedia:

> The postmodern semiotic concept of "hyperreality" was contentiously coined by French sociologist Jean Baudrillard in *Simulacra and Simulation*. Baudrillard defined "hyperreality" as "the generation by models of a real without origin or reality", it is a representation, a sign, without an original referent. Baudrillard believes hyperreality goes further than confusing or blending the 'real' with the symbol which represents it; it involves creating a symbol or set of signifiers which actually represent something that does not actually exist, like Santa Claus. Baudrillard in particular suggests that the world we live in has been replaced by a copy world, where we seek simulated stimuli and nothing more. Baudrillard borrows, from Jorge Luis Borges' "On Exactitude in Science" (who already borrowed from Lewis Carroll), the example of a society whose cartographers create a map so detailed that it covers the very things it was designed to represent. When the empire declines, the map fades into the landscape and there is neither the representation nor the real remaining – just the hyperreal. Baudrillard's idea of hyperreality was heavily influenced by phenomenology,

semiotics, and Marshall McLuhan[77].

This position is not so difficult to hold, since most information that comes to us is mediated: updates from friends come often via facebook or social media, everything is photographed and shared, and many of it goes through an instagram filter to make it look better. So I'm not looking at an actual cup of coffee one of my friends has consumed but at an symbol that represents, I don't know... an idealized reference? The most perfect possible cup of coffee that is conjured up by the person who took the picture and tweaked it until it looked good enough? Or is it a more abstract reference that broadcasts into the world to your peers that you are able to cope successfully with life?

But is it possible for a person to express himself in tweets, status updates, likes, comments, pictures and YouTube videos? How could you ever manifest who you really are online? Given you have the additional factor that you may represent yourself to be – whoever you choose to be. Or are you?

On the whole we experience life and reality more and more through a screen and we are turned into whatever can be submitted through files. Technology stops being a utility and starts functioning as lens through which everything is perceived. The new real, this hyperreality, Baudrillard says, arises from models of control so it can be reproduced an indefinite number of times.

With all the control however there is also a magical aspect to the Internet that is not often talked about: frustration. We know that it comes through wires or just wireless out of thin air, that we should press this button or that one and it works in the most cases. But when it doesn't work, and we are certain that we are doing the right thing still the machine won't comply, we are out of our depth and are left with the ultimate puzzlement. In analogue, mechanical machinery it was possible to find the kink. The whole idea of a “bug” in the system, is to give the fault some tangible form and explain what caused computers not to run properly, a “bug” that is crawling through the cabels, causing the mistake. But when the bug is an abstract entity, we have to trust experts, hackers, developers and IT specialists to find a solution. And sometimes, actually oftentimes, they find solutions that seem to work, but no one really understands why. As an end user, I can not even begin to solve a problem when what I always do and works one day just simply stops working. I adjust the cables, reboot, log on, log off, and then there is nothing else left than pray and hope that that will fix my problem. When confronted with a link or button I click on, but which doesn't do what it promises to, I can feel my body getting physically upset. This should work, this should do what it is made to do! Why can't I control the machine??!

But as long as it works, we don't ask questions, as long as its boundaries are out of our sight, the machine is invisible.

77 http://en.wikipedia.org/wiki/Hyperreality

4 to 1 – from Offline to Online

Offline is sometimes referred to in Online slang as “meat space”, referring to our bodies we keep offline, in *space* as we know it. This division line is generally accepted – offline is where our bodies are, online is accessed with our brains. All our experiences are of course filtered through our brains, but more and more of these our experiences take place or originate from online and less from the body for the simple reason that we spend more and more time infront of screens. We don't call, we email. We don't run into people but see what they are up to on Facebook. We don't read books, but read e-books, or download pdf's – to our computers (laptops, tablets and phones)and then skim them. Connection and communication shifts to internet applications. Which actually doesn't have to mean that we have less or more superficial connections, on the contrary: now we are able to keep in touch with more people.

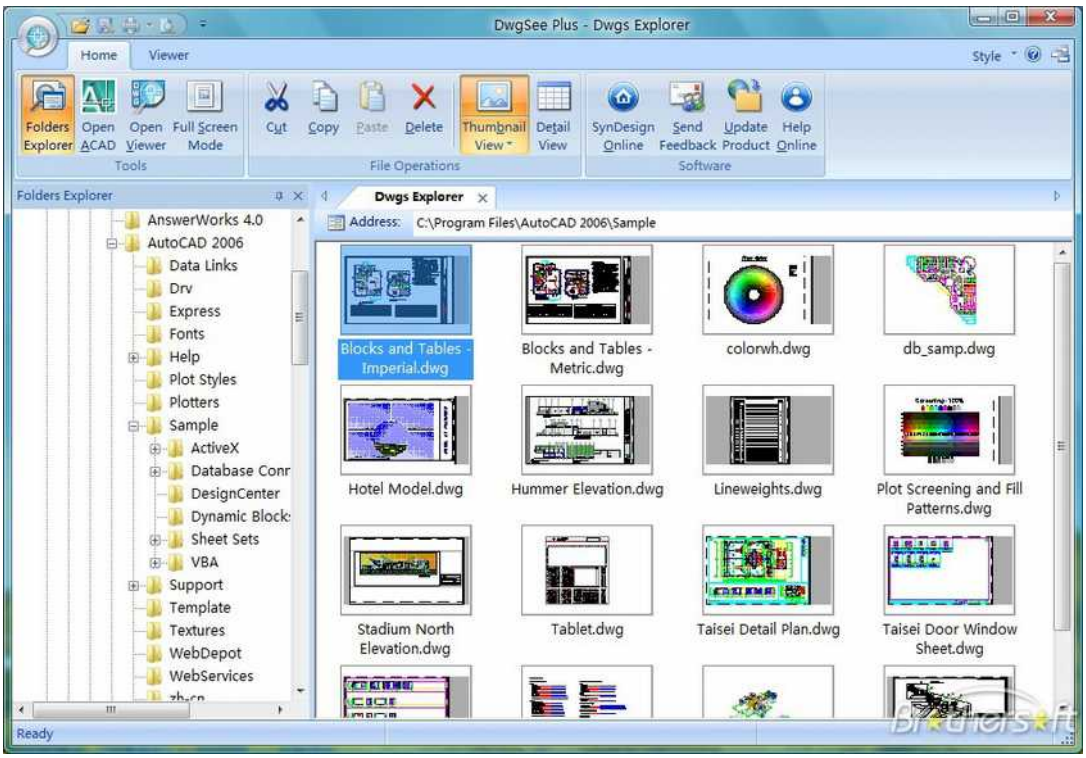
To access the “online” there need to be interfaces. An interface joins two or more systems, users, programs to communicate, and an user interfaces ensure that the machine and human can communicate with eachother. Which means that when I press OK, the computer knows what to do and it returns something that I can still read. In it's turn the internet itself is an interface for us 3 billion to communicate with eachother.

To outline some of the interfaces we encounter daily, I made a list of the most known ones:

The physical interface, the screen which is square and based on the principles of printing. Although more and more things move on the screen, it is still static, it links us to computers, which results in most of us sitting in one position for hours on end, daily.

The browser – the graphical browser that allowed us mortals also to interact with the Online. The graphical browser was fundamental change, an adaptation to a human way of thinking. We moved from this:

To this:



Visual cues: since human communication is for a large part non-verbal, (generally estimated to constitute two thirds of our communication) we ran into some problems on an only text-based web. The emoticon was invented, the use of interpunctuation for conveying emotion, such as :-) and :-(which soon grew out to very complex sequences.

Non-verbal communication entails in the real world not only body language, but also tone in the voice, pronounciation, distance, physical environments/appearance. On the internet l33t and abbreviations are also prevalent.

Voice commands: with Siri on the iPhone and Google Now on

Android we can also interact with our phones through spoken commands. The technology is being developed all around, Google Glass has this feature, the Xbox allows for certain commands, and it's being developed to be applied to more fields, to car navigation systems for example.

Words: how we talk about the internet and internetspeak. Because it's such a big and abstract space/place/terrritory, we need metaphors to wrap our head around it. We say that we visit a webpage, or go to a webpage, and actually we go online – as if it involved any physical distance and effort. There is a dark net, as if light was a relevant term and a deep web as if the web had a physical dimension. There are streams, pools, and oceans of information, leaks and torrents of course, you can stream information, and there are pirates on all of this watery substance. The mother or all vague internet expressions is "the cloud", which in reality as much a tangible server as any, but as inaccessible as the powerplants that provide electricity.

On always being available and still feeling lonely[78]

Nevertheless the potential for connection doesn't guarantee the feeling of connectedness. With 422 Facebook friends and over 9000 Twitter followers one still can feel lonely. As a quote on a Pinterest board says: 'loneliness is not being alone but the feeling that no one cares".

These feelings and our ability to communicate does not depend on the communication infrastructure. That we can't get the message across can depend on whether we dare to say what we think is important, or are we holding back, and broadcast only an image that we think is expected of us.

True, on the internet it's easier to find subgroups who share your interests and values, but it also makes it hard to feel seen or heard in a stream of information, between faceless strangers. Confessions to the screen can be insufficient for someone longing to fill the distance they feel from their fellow human beings.

What seems to be the trend however is that we do not disconnect anymore. Many of us, and inversely correlating with age, are always available. Signed into skype, messenger, gmail, twitter, facebook, pinterest, flickr, tumblr, dropbox, whatsapp, snapchat, optionally datingsites, there are all these alerts coming in. You were checked out, liked, shared, visited, alert, alert, alert. This phenomenon can take such measures that it becomes a condition which is named "disconnect anxiety[79]" One is always available and feels the stress to give proof of their existence continuously. Every event should be documented, shared, broadcasted. I share, therefore I am. But this type of sharing can easily feel like an obligation to justify ones existence.

Can we still be present? Present with the person we are face to face to, present with our attention focused on one email that

78 See also http://vimeo.com/70534716 – The Innovation of Loneliness

79 http://arstechnica.com/uncategorized/2008/03/disconnect-anxiety-a-malady-for-the-21st-century/

we have to write, not distracted every other second. We have this fractured presence, caught between the two worlds, checking our phones 150-200 times a day, scanning the environment for things to share online, liking the digital representation of real world expriences others put up of themselves, like a picnic on a rooftop in the sunset, mental note, I should make a photo next time I make muffins and post it.

But from this fracturedness it's hard to find a solid core, it's hard to answer question of who I am. How do I create and identity? Can we find an identity online? Does one just create one? Can we be different people online and offline? Should we be? Do we have to know who we are, or should we let your peers steer us? Wear the clothes that receive the most likes, friend those who are the most popular, read the books Amazon recommends, listen to what Spotify thinks we'd like? We have an amazingly huge feedback group out there to consult, but how useful and trustworthy is that feedback?

It was suggested in the 1990s by British anthropologist Robin Dunbar that we humans have a limit on our number of real social contacts and that is in the range between 100 and 250, most commonly cited as 150. This number, commonly referred to as the Dunbar number, semms to hold true, taken that in his surveys village and tribe sizes also appeared to approximate this predicted value, including 150 as the estimated size of a Neolithic farming village; 150 as the splitting point of Hutterite settlements; 200 as the upper bound on the number of academics in a discipline's sub-specialization; 150 as the basic unit size of professional armies in Roman antiquity and in modern times since the 16th century; and notions of appropriate company size[80] - and most people had around this number of contact in their phone booklets before the introduction of smartphones that automatically add contacts.

Currently half the world now lives in cities which are significantly larger than 150 people. Our ability to talk and to gossip has enabled us to form large and more stable groups but we don't know them all intimately, so we live between strangers.

What we see and experience online, it teaches us also about our every day, physical reality. News travels through the internet, we see people we would otherwise not see, the internet is full of them, and of tutorials, full of information we can use and we need. Mumsnet was set up because as a mum you trust other mums to be a good source of information, better source than any company or faceless institution. Or if you happened to see some of the Russian Car Dash compilation, a documentation of what happens on the Russian roads, it put everything in perspective. The same with tutorials, whatever you don't know, you can learn online.

Still what we experience online is only a representation of the physical reality, it's not the real thing. It is a representation, it is hyperreal. But is it? Or has it become a

80 http://en.wikipedia.org/wiki/Dunbar%27s_number

world in its own right?

Is the internet a utility, as the old generations can use it? Or has it become something to depend on, something that is the very place where life takes place? The place where one can belong?

Paul Miller, a young guy form the US has quit the internet in 2012 for a year, when he was 26 years old[81]. He did it because it became so overwhelming: you can't win from your inbox, or from twitter, there is always more. He lived off the internet, it was his work, he wrote for Wired, it was his thing, but it became depressing, so he pulled the plug. Which was big, because he was born post-internet. His question was "how does the internet use me, and to what extent do I use it?"

After leaving the internet he felt freedom and relief. He felt like reclaiming his life. And then boredom beyond belief. But with boredom came a space and time to think and decide for himself what he actually wanted. His focus became stronger, which also showed in interpersonal relationship, people told him that is was really intens, talking to him. He became more emotionally available.

He started to use video games though to replace the internet and became even more isolated because most social contact went through the internet. Because he missed so much of the communication, he also went out of synch with his social circle: he hasn't seen the same movies, he wasn't following the happenings online. Which made him more and more lonely.

When the year was over, he went online again, it was one of the most intense experience of them all. We don't realize how skilled we are, how many channels we are communicating through.

What he is saying tough is that we should learn to prioritize. When he was back online, and his sister wanted to talk again, he again used the laptop as a shield as he used to – and had to consciously make himself stop, close the lid and listen. Which is not a surprising lesson. We have to learn on how to *use* the internet. Because leaving the internet won't solve our proplems. Whereever you go, there you are.

It is about a balance. If you are 100% online, you miss what is going on in your life, and if you are 100% offline, the collectivity that is the internet will miss what you have experienced.

4 => 5 How Offline Gives Rise to Collectivity

We are social animals with an innate urge to connect, for which we invented various technologies such as language, literacy, books, and now the internet. The more options there are, the more we use them. In his book, The Internet Galaxy (2001), Manuel Castells describes study cases where those who have access to internet tend to keep more in contact also with far away relatives and in turn also be more active and involved locally.

81 https://www.YouTube.com/watch?v=trVzyG4zFMU A year offline, what I have learned | Paul Miller | TEDxEutropolis

Our basic need is to connect, we are hardwired to be social, and this is also how we relate to the Internet. Usually we use the computers to share, to cooperate and to connect. And this is helping us further, because as it's proven, if we work together, we become primates that can fly.

Basically our innate (offline) ability to cooperate is enhanced by the machine. We use the digital realms for the same purpose we used every technology for: to cooperate and to evolve our species. James Gleick (2011) mentions the anecdote that commerce in New York could not have happened on such a scale without the elevators. New York has skyscrapers and if the couriers have had to climb all the stairs with parcels and the messages, it would have slowed down the process too much, and had made development impossible.

In the same way of course all technologies have contributed, and so has the internet. It gives a platform to people to congregate, communicate and cooperate on an unheard of scale, where we do what we basically we always did, but now melt together into a collective, interconnected realm.

5 is Collectivity and its Discontents

This chapter explores what happens when 40% of the world population is put into contact with each other. After the age of the mass broadcast (one to many communication) we now enter the era of the many to many communication. There is an infrastructure in place, there is content being generated by over 3 billion people using the infrastructure, we are communicating.

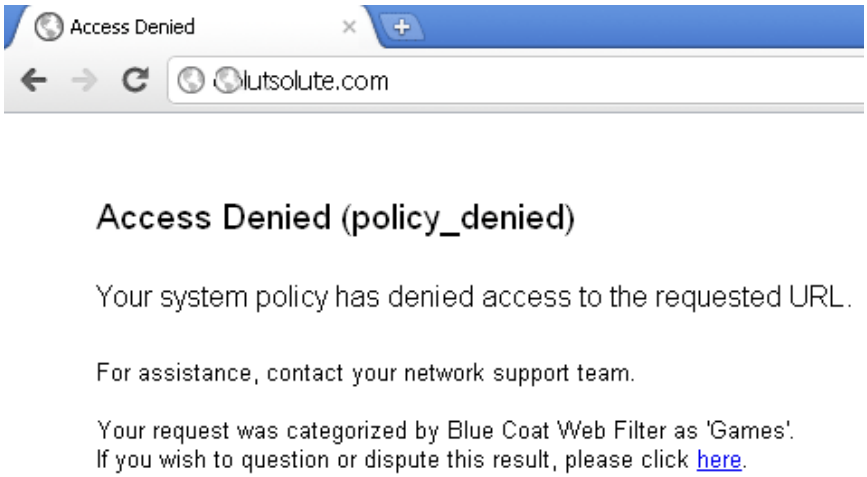
The topic of this chapter raises many questions, amongst them: with so many people, has the Internet become a public space? Is it a public utility, like electricity or gas? Is access to the internet a basic human right[82]? Who owns what, who has access, who controls what? Do we need new laws and rules to behave in this new, virtual space? Do we have rights and responsibilities? Do we have a right to privacy? Who is watching us? Who are we watching? Do we have the right to be forgotten? What are our responsibilities? Can we stay anonymous?

To address these questions, I have arranged them into subcategories and centered them around the most known and discussed issues, such as access, control, privacy and trust. The topics overlap and are all interconnected, as we see it over and over again everything has an influence on everything, but hopefully this structure will help to provide an overview and an insight into the issues. I tried to find answer or at least entry points to most of the questions, but sometimes not even the questions are clear yet. These questions are important because they are the foundation of how our society will look like in the future, but answering them is an ongoing process with should all be concerned with. Let us star with *access*.

82 Internet access as human right http://en.wikipedia.org/wiki/Right_to_Internet_access

Access

Access for all



One really important aspect of the internet is that no one person or organisation has invented it, no one person or organisation owns or governs it, and no one understands it completely. Many people came up with many ideas and solutions and billions contribute every day. There are central institutions, but the is no one thing to rule them all. Similar to how no one knows how to make a pencil[83], we have no idea how the build the internet should the one we now have disappear. We couldn't recreate it.

There is also no one who oversees it, but the whole complexum somehow seems to work. And it works despite or thanks to that there are 3 billion people on it. Over 40% of the population is online. The other 60% is still the majority and there is a possibility that a 4th world[84] will emerge: those who have no access to the internet. This vision has been around since start, but it is still a potential scenario that should be kept in mind.

For the rest of us, who daily use it, it has become our new hometown, we have developed a language together, references and connections that internet users all over the world will understand. We have become the netizens, the digital citizens of the global village.

We have come to see the internet as our basic human right, access to it in the Western civilisation should be just as

83 I, Pencil, an essay by Leonard Read first published in 1998, is written in the first person from the point of view of a pencil. The pencil details the complexity of its own creation, listing its components (cedar, lacquer, graphite, ferrule, factice, pumice, wax, glue) and the numerous people involved, down to the sweeper in the factory and the lighthouse keeper guiding the shipment into port, arguing that no central person is making decisions rather an *invisible hand*, which should be trusted to govern our actions. "Permit these creative know-hows freely to flow. Have faith that free men and women will respond to the Invisible Hand. This faith will be confirmed. "

84 http://www.leonardo.info/isast/journal/mali281.html 1995, Roger F. Malina, a social or geographical layer of society that doesn't have access to the internet.

effortless as access to electricity. It has become such a basic tool, that without it we feel impeded. It is still possible for us to go about our daily lives without internet, but it requires some restructuring. When I'm travelling I ask in a hotel first if there is wifi, and only then if there is hot water. When I'm looking for a quote, I'd sooner type it into the search bar than pick up the actual book and search for the quote in it.

The access to the internet depends also on the physical infrastructure of course, on the cables, on whether the country has enough fibreoptic cables running through it, whether the broadband is broad enough to stream, download, upload, or just load at all. That is not the case in developing countries, there is of course a difference in how hard a country can go on the "information highway". In January 2015 the setup of a new project was confirmed: project SpaceX[85] initiated by Elon Musk (co-founder of PayPal among many other things) will shoot up a fleet of 700 small satellites to provide cheap and easy internet access in the areas that would otherwise not be able to connect (e.g. Africa). Both Google and Fidelity have promised to invest 1 billion dollars in the project. The idea is not without a forerunner, Google itself has been working on a project with similar intent, named Project Loon[86] – but they intended to operate with balloons.

However, access is not so universal just as yet.

Access to all

"Access" also means that we have access to all kinds of information, that there is no judgment call by any central authority on what is valuable to society. One is free to choose between reading up on classics of literature just as much as to find tips on anorexia (#proana), or why and how to die for your religion, or buy anything one could possibly think of, and DIY plumbing to DIY bombs, drugs and rock and roll.

The most vulnerable are of course the young. They grow up with screens everywhere, with a device in their hand that will show them exactly and immediately anything they want – and more. How could they resist watching? Being a teenager has always been extremely stressful, and in our complex societies it is becoming increasingly tough to deal with all expectations, and to find your place, so if they have the opportunity to focus on anything else that is more pleasurable, of course they will. The internet is a place to find company, distraction, validation. It tells you what you like, who you might want to be. It serves all needs. Except the need to be with yourself, alone, to reflect, and listen to yourself. It serves as a drug – at best as a band aid, at worst as opium.

So who will protect us from ourselves and how do we ensure that our children don't see what they shouldn't? We probably

85 http://www.spacex.com/
86 http://www.google.com/loon/

can't. We can only prepare them, and talk to them about...stuff.

At the same time the access to all is a myth. There be filter bubbles. There be access denied alerts for queries from certain countries. There be data in databases that is theory publicly accessible but in reality many lawyers are needed to access.

On the positive side, there are also open source initiatives. Open source is a better term for free software – because free is often misunderstood. It is free as in free speech, not as in free beer. So when the source of a software is open, it means that the user or anyone can have a look under the hood[87] and understand how it works – and not a black box that you can't open.

Access does not always mean availability or at least not for all. Everything can be bought online if you know where to look for it. Because not all the information out there is available directly by searching for it with a search engine. There is a huge part, called the Deep Web, (also called the Deepnet, Invisible Web, or Hidden Web) is the portion of World Wide Web content that is not indexed by standard search engines. And this is a big bit:

It is part of the Internet, it is part of the web, only not as obviously placed as most of the websites. Sometimes it's not accessible because it's a password protected database, or an academic library, tor networks, political dissidents communicating, scientific databases, also unconnected, floating websites that are just islands and therefore not indexed, so it's not only porn, pirated material, and other illegal activities. Of

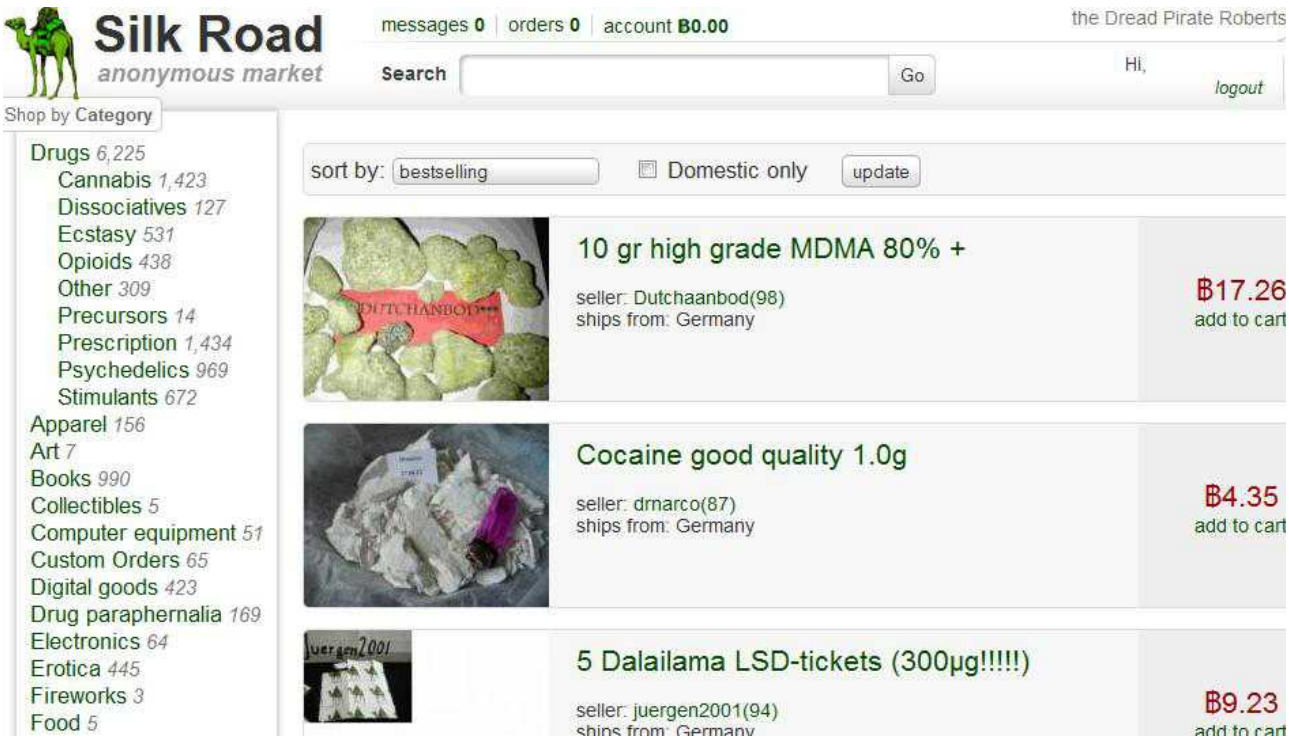
87 Perfect example: under the hood refers to a car. There was a time when you could open up a car and see the engine and different parts and actually try to fix it. This was before the car became a black box, that can only be looked at via a computer and fixed in the garage.

course there is plenty of illegal activity going on in the depths, enough skeletons, and too much torture, and many awful things. Anything one would rather not think about, can probably be found there somewhere. But also everything you would like to buy can be ordered in these recesses of the web.

Such was for example the notorious Silk Road, the Deep Web marketplace, set up in 2011 and busted in 2013 by the FBI. Since then it was resurrected but it's not the continuation of the same Silk Road, administrators are different, and it moved from the Tor network a level deeper to the so-called I2P network. Funny thing is, that I2P was developed since 2003 as a friendly peer-to-peer communication hub by a small community that knew eachother.

But back to Silk Road. From Wikipedia: "In March 2013, the site had 10,000 products for sale by vendors, 70% of which were drugs. In October 2014, there were 13,756 listings for drugs, grouped under the headings stimulants, psychedelics, prescription, precursors, other, opioids, ecstasy, dissociatives, cannabis and steroids/PEDs. The site's terms of service prohibited the sale of certain items. This included child pornography, stolen credit cards, assassinations, and weapons of mass destruction. There were also legal goods and services for sale, such as apparel, art, books, cigarettes, erotica, jewelery, and writing services. A sister site, called "The Armory", sold weapons (primarily guns) during 2012, but was shut down due to a lack of demand."

Silk Road appeared to be functioning in many ways the same as eBay and Amazon, or any online market: buyers were able to leave reviews of sellers' products on the site, and in an associated forum where crowdsourcing provided information about the best sellers and worst scammers – you know, to protect the decent criminals from the criminal criminals.



I really like the the idea however that in the deepest recess there is still order and even outside the law, we network. However, since the FBI shut it down, new sites have sprung up, which hopefully are morally just as strict and won't allow for

child porn. And also sell art.

This example also confronts us with the question: can we trust people with access? In this case access to drugs, to weapons, to illegal substances. Can we allow access to everything or shall we impose some sort of control to save them from themselves? If so, what extent of control? And who shall have it? And how do we control those in control?

The division lines online are not quite clear and sometimes we want access to what we shouldn't have access to. This means that everyone is a potential "cyber" criminal. We can illegally download copyrighted films, movies and other content, we have the potential to participate in DDOS attacks[88], we can install malware, spyware on devices that belong to others, we can leave anonymous comments that threaten, that really impact someone's life, we can troll, we can stalk, we can attack websites, we can share the illegal content. Cyber crime has exploded in that sense. Half of the traffic to official sites is attacks of some sorts. Money disappears from banks because it's digital and can be transferred. We can steal someones identity – even on an every day level, as in logging into the social network account of someone and post in their name.

The new sources of power that emerge from this "access for all" structure seem to be the **search engines and algorithms**. Those who direct our attention, those who tell us where to get the information that we are looking for and algorithms that determine how events play out. They control now the stock markets thus the world economy, and it's really hard to have access to the source code, to see what they are actually doing.

Control

Control is the power to influence or direct people's behaviour or the course of events.

There are instances where decisions have to be made, lines have to be drawn in the digital sand, questions of ownership have to be settled, when next investments are planned. When over 3 billion people come together, sometimes it's not easy to decide who should be calling the shots.

88 From Wikipedia: In computing, a denial-of-service (DoS) or distributed denial-of-service (DDoS) attack is an attempt to make a machine or network resource unavailable to its intended users.

One common method of attack involves saturating the target machine with external communications requests, so much so that it cannot respond to legitimate traffic, or responds so slowly as to be rendered essentially unavailable. Such attacks usually lead to a server overload. In general terms, DoS attacks are implemented by either forcing the targeted computer(s) to reset, or consuming its resources so that it can no longer provide its intended service or obstructing the communication media between the intended users and the victim so that they can no longer communicate adequately.

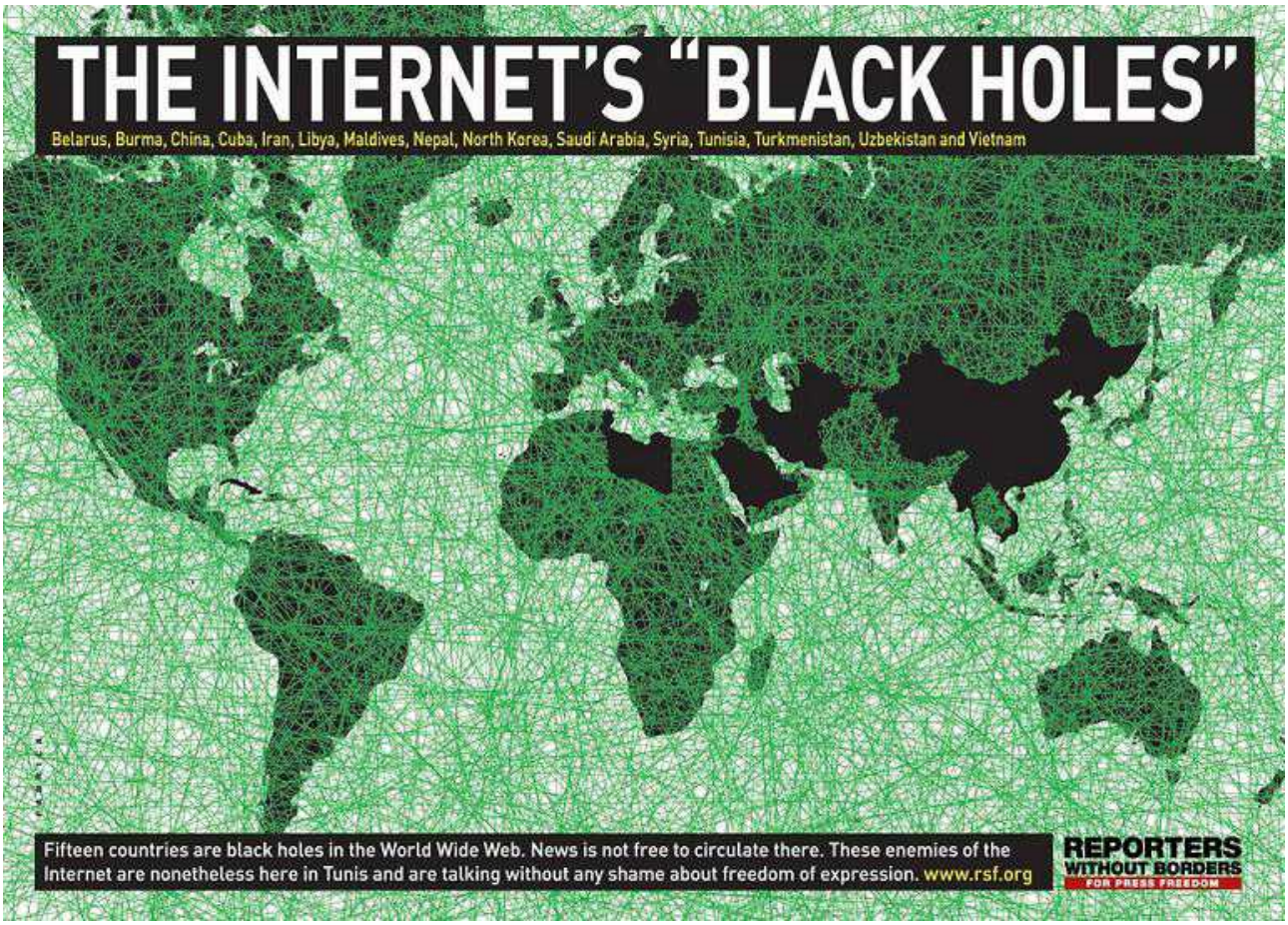
There are many institutions that are established to have a certain maintenance, educational, and control function, to make sure that the internet keeps running and stays as open as it is now. Because that's not a given. The whole setup of the net is not a given, it's maintained. By amongst others:

- **The Internet Engineering Task Force** (**IETF**): An international organization with an open membership policy that has several **working groups**. Each working group concentrates on a specific topic, such as Internet security. Collectively, these working groups try to maintain the Internet's architecture and stability.
- **The Internet Society**: A nonprofit organization that develops Internet standards, policies and education.
- **The Internet Architecture Board** (**IAB**): An IETF committee, the IAB's mission is to oversee the design of Internet protocols and standards.
- **The Internet Corporation for Assigned Names and Numbers** (**ICANN**): A private nonprofit corporation, ICANN manages the Internet's **Domain Name System** (**DNS**). ICANN is responsible for making sure that every domain name links to the correct **IP address –** along with 5 other registrars in the world.
  And others, like the **EFF**, **ACLU**, **Public Knowledge**, **Demand Progress** or the **Fight for the Future Coalition**

There are also initiatives to consciously decide about the faith of the internet the Web We Want[89] and to set up a Magna Carta for Digital Rights[90].

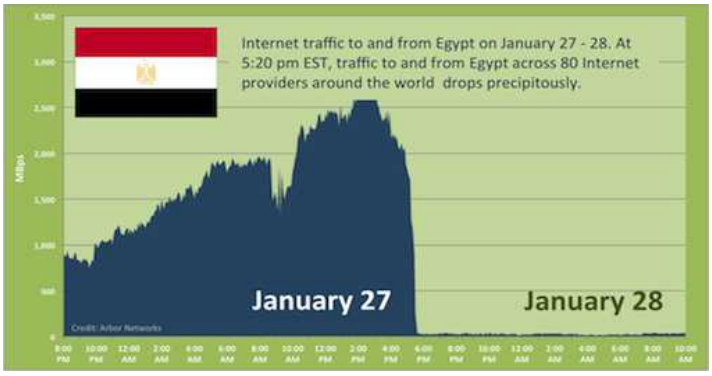
Beside these institutions there are of course the governments and the laws that tend to restrict the internet and influence the behaviour of people and events. Influencing ranges from the Chinese government that censors the web for its citizens to taking down sites of neo nazis and child pornography, and other criminal activities. The difficulty in this is that what is criminal in one country might be allowed in a different country, making decisions and agreements fuzzy.

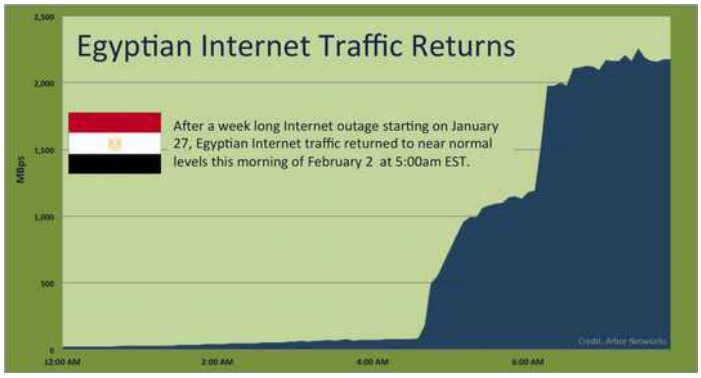
89 https://webwewant.org
90http://www.bl.uk/my-digital-rights/



Censorship is a serious issue connected to the internet. The whole medium is perceived as the embodiment of free speech, the great democratic platform that has finally arrived where everyone has equal opportunity to out his opinion. It turns out that it's not always that frictionless. Censorship can have forms, such as allowing for a new state, e.g. to allow Monte Negro to have the .me top-level domain after it became independent in 2006, but not allowing Tibet to have its own domain name – and thereby not recognizing it as a separate entity.

The most extreme version of censorship is to cut off a country from the internet – as it happened in Egypt during the Arab Spring on January 27, 2011, when the government couldn't handle the situation and decided to pull the plug. As we have witnessed, it's not a very bright idea. A week later they switched the internet back on again, causing in that one week significant damage to the country – and inconveniencing the citizens, but not disabling them completely to communicate with the world and get news out into the public.





So who controls those who are in control? How do we make sure we don't kill ourselves by accident or by incompetence or that no significant unbalance gets established and can be maintained? Who watches the watchers? Let's face it, power corrupts, be it online or anywhere else, and absolute power corrupts absolutely, so some sort of supervision, or dare I say surveillance is needed.

Beside the established and institutionalized forces, such as the government, military, jurisdiction, and commercial interests, there are new forms of control emerging, which can probably be better inventarised than in my summary below, but here is a provisionary list:

The control of the **editors**. The gate keepers. **Search engines**, **news flows**. When we are looking for information online if is not often that we go directly to a page by typing in its URL into the URL bar. Usually we search via one of the search engines and that is likely to be Google. Google comes up with a zillion results in 0.000nothing seconds but usually we don't even scroll all the way down to see the full first page. Let alone, going to the next page. The second page of the search results is the best place to hide a dead body, as the internet saying goes. And in the same line it rings very true what the internet wiz kid Aaron Swartz said: "now everyone has a license to speak, the question is only who gets heard". So editing and placement is crucial.

Arranging information can be seen as censorship at worst and and a **filter bubble** "at best". There is no standard google anymore, your search results are tailored on to your interests, location, age, gender, race, previous searches. Results are edited out – and what is not on the first page of your google search results, is invisible[91]. The internet, social networks, your search results mirror personal beliefs right back at you, so it's even harder to break out because you don't even know what you don't know. They don't balance it out, they just give you what you want. Editors had a certain ethics to represent the world and give the reader a balanced picture, and this trait has not necessarily been programmed into algorithms.

There is some serious **peer pressure** online. As the network becomes more and more community-oriented, socially networked, since you can leave comments everywhere, sign in, sign up to, join, like, like some more, get rss feed, subscribe, follow, love, and support, there is naturally more and more pressure to be liked, to get followers, and subscribers. This has many effects, one of them is for example what we see with Kickstarter, world's largest funding platform for creative projects. It is a website that allows users to upload the project they would like to get funded and allows viewers to fund these projects. So I, as a visitor, can decide if I want to invest money into anything I like there. This removes the middle man so supply and demand can be negotiated directly between peers.

A potential option of "**shared control**" as suggested by Kevin

91 http://www.ted.com/talks/eli_pariser_beware_online_filter_bubbles – Eli Pariser: Beware online "filter bubbles"

Kelly. He sees the internet as one big thing of which we are all part of and its rules helays out as follows[92]:

There is only One machine.
The web is it's OS.
All screens look into the One.
No bits will live outside the web.
To share is to gain.
Let the One read it.
The One is us.

So we unite and fuse into this one global creature. Maybe.

There is a form of **liquid control** that pierces shields, wears down established forts of control, and is hard to grasp. The force of great numbers, dispersed across the net. These have many forms and manifest like the Pirate Bay, Anonymous, WikiLeaks, Wikipedia, the darkweb, the TOR network. The possibility to take down a site just by pinging it too many times, or redirecting so much traffic there that the servers crash, such as DDOS attacks, sharing huge amounts of information in very tiny chunks.

An other strange example of difficult-to-grasp control is Couchsurfing, where there is little evidence of control, still it's under control. This site is run by 7 people but hosts millions all across the globe. It is a platform where travellers and hosts can come into contact with eachother and travellers can crash on the couches of the host they came into contact with. For free. This site completely runs on people talking to eachother, giving eachother reviews, chatting about their interests. The site takes no responsibility for interactions between hosts and guests but the whole community operates since 2003 without major incidents. So given the platform, there is a self-organising force that is established through the internet and it works all across the world.

Destruction, viruses – the Heartbleed[93] affair is assuring us, that information will never be secure. But this insecurity is a feature of the internet and not a bug. There are many different types of viruses and attacks, half of the traffic to banking or governmental sites is malicious. The fast pace of virus evolution is also the reason behind all operating systems, applications, etc. being updated continually.

A particular form of control is **trolling**, which is a behaviour based on big numbers and anonymity. Trolling is a particular kind of sports where the trolls' aim is to get the opponent as angry as possible or cause (emotional) disruption in many form[94] – ranging from harmless pranks to what qualifies legally as harrassment. It is related to peer pressure and is a liquid form of control, and being horrible has always been around (think satires, mock poems,

92 https://www.YouTube.com/watch?v=yDYCf4ONh5M – TED talk Kevin Kelly: The next 5,000 days of the web

93 https://en.wikipedia.org/wiki/Heartbleed

94 https://www.YouTube.com/watch?v=FAubx3BBgLk Why study villains, scoundrels, and rule breakers? Whitney Phillips at TEDxCCS

jesters) but with the internet it has become a new type of ballgame in its own right.

Ownership control, Copyright, Intellectual property, the Digital Millennium Copyright Act and Piracy. This is also a very large topic, which I cannot deal with in detail here. Because of our human nature one would like to regulate the ownership of content but because of the digital nature of the internet it's very much evasive and pretty hard to regulate. New terms of property emerge, because we are moving from ownership to access. How do you own your words? How do you own your likes, your comments, your browsing history? Your private data? In Germany you own the likeness of the front of your house, which means that people can't just film it. In Hungary you can't film people in public spaces without their consent. (The latter is of course impossible to maintain, but it's an awkwardly funny try.)

Then again, search results that I generated by searching, is the property of Google. Linked or not to my name, the queries are logged in their database. Facebook is keeping track of all our likes, shares, posts, who we friended, life events. Or the fact that all public tweets ever are saved in the Library of Congress[95] in the United States. All public tweets. Ever. Even the ones I decided to delete on second thought. They acquired it in 2010 with the intent to make a publicly available archive. By 2013 it became clear that technically they are not able – or not yet able – to set up a searchable library for the tweets. They say an archive exists, but it's raw, private, and functionally unsearchable. A single query, the Library says "could take 24 hours."[96]
But all of it does mean that tweets are public property.

Many of the issues comes from the fact that we don't exactly know how things work. We don't know what our actions entail. There is already so much to pay attention to that we don't realize if we are not missing something (have my privacy settings changed? What are privacy settings?) and if something is to our disliking, are there alternatives? When Whatsapp was bought by Facebook, a fair amount of people moved over to other instant messaging softwares, but who owns that? What do they do with my data? Do the different databases get merged down the line?

Those are tricky questions and head towards the phenomenon of surveillance, but going back to copyright, even if I happen to willingly participate and put out my creations online, it's not quite clear how I can make sure that what I created, is protected. One solution that came out of the legal battles over copyright is Creative Commons[97], an organisation for a new way of licensing work, established by Laurence Lessing, American academic and political activist. This type of copyright allows authors and creators to restrict different aspects of their creation, e.g. how it's used and how it's shared, and if they allow third party to

95 http://blogs.loc.gov/loc/2013/01/update-on-the-twitter-archive-at-the-library-of-congress/ and http://blogs.loc.gov/loc/2010/04/how-tweet-it-is-library-acquires-entire-twitter-archive/

96 http://www.buzzfeed.com/jwherrman/library-of-congress-falls-behind-on-twitter-archiv#.rreWnWxYD

97 https://creativecommons.org/

use it commercially.

Hackers, hacktivists – a form of control that comes from critical thinking and skill, asking questions and trying to find other solutions than the ones already known. So there is also the question of the control over the machine. If I can't open my machine, if I can't make it do what I want it to do, then I'm owned. Then I am controlled by the maker of the machine. Hacking is focused on opening up the black boxes and looking into the workings of the machine. Not just asking "what does this machine do?" but also "what can I make this machine do?" - and posing the question also in a larger context. Can we change the way the world is?

An example[98] of what "hackers" can and would do: when Christopher Poole (m00s), founder of 4chan[99] was nominated for the Time 100 pool, the internet got wind of it, decided they wanted him to win and got him to win with a 390% rate... and spelled "Marble Cake Also the Game" with the names of the other contestants...

The same "group", (its members are called anons) would form Anonymous and launch DDOS attacks to disable VISA and PayPal when those denied service to Wikileaks. They protested in the Guy Fawkes masks against the Scientology Church and for Occupy, for the Arab Spring, and Turkey.

Last but not least, there is a particular type of control, which should have a section of it's own, and which is the next section: surveillance.

Before we move on however, I would like to talk about a new phenomenon, the *loss* of control over data on the internet. As Michael Seemann (2014) defines the degrees of loss of control (Kontrollenverlust):

1. we no longer control which information is recorded about us and where
2. we no longer control where our data travels
3. we can no longer anticipate, due to machine learning, AI, and big data, how our data is interpreted.

"In other words, data we never knew existed will find channels that were not intended and reveal information that we would never have thought of on our own. And this is substantially changing the world."

That is quite new and something radical to deal with. And now we are ready to move on.

Surveillance

98 http://www.ted.com/talks/christopher_m00t_poole_the_case_for_anonymity_online#t-230869

99 http://4chan.com/

We have seen the number of CCTV cameras grow in the cities, we heard rumours of governments listening in for a decade now, we knew that there are institutions like the NSA, but when Edward Snowden, who was a system administrator at the NSA, started to leak information to the public in June 2013, there was no way around it anymore. It is now an established fact: we are being surveilled collectively, continuously. Just to put it into perspective: the entire planet is being observed. Everything we do, all the time, it goes into big databases. This is a new scale of thinking. The feared Big Brother and/or the Brave New World scenario in actually ongoing. And we are still in denial.

So much data is being collected that only a fraction can be processed but who knows how the software is developed or will develop over the years, and what will be possible five years from now. Governments and corporations collect all information available on us. Because data is power and because they can.

This evolution of the machine means that tools develop, but so do skills. And who owns the tools – or has access to these tool – and who has the skills is a very important question. Whoever has the knowledge, will be able to make decisions. As Mary (Missy) Cummings, visiting Professor at Aeronautics and Astronautics at MIT said, her students are not going to work for the government or the military after graduation but more likely choose an organisation like Google, which has the money and the creative ability, challenging environment to allow young talent to develop further.

The most feared form of surveillance currently is that we are being spied upon by large organisations and governments: Google, Amazon, Yahoo!, Hotmail, Facebook, NSA. It is hard to tell who knows what and what they use it for but as Robert David Steele, the writer of The Open Source Everything Manifesto said at the LibTech NYC conference[100]: "don't worry about the NSA. Their dirty little secret is that they process less than 1% of what they gather. What they are about is money laundering, moving money for the government." Possible, still, they *have* the material, there is a potential that they can use it. And if not them, Google, Amazon, Facebook could. If not now, maybe later. Technology allows for real time tracking by GPS, and having all these apps on our phones, the possibility is out there to follow any persons every step, every heartbeat, every thought, so it's hanging above our heads like the sword of Damocles.

That we are being watched is mostly driven by commerce (advertisers want to know what we are likely to buy) and by governments (who want to know how to steer public behaviour) but it has dire consequences. We are known, our behaviour is known. They know what we react to, how we react, how we can be engineered. Not a happy thought.

So far I haven't found many suggestion for counter-action, but what I did come across are could work:

Cory Doctorow suggests that we, the internetizens should make sure that we encrypt our communications. It doesn't have to be full Enigma, but just so that it raises the costs of following a

100https://www.YouTube.com/watch?v=qCnpe_bIsUI around 19:00

person enough so that we will not be *collectively* and *continuously* surveilled.

The other option is from journalist Heather Brooke (more about her TED talk below) who suggested that we should have legal rights to information. An 'Official Disclosure Act', where officials would be punished by law if they do not disclose information, if it's found out that they hide data from the public that is in the public interest.

Privacy

Privacy is a state in which one is not observed or disturbed by other people. The ability of an individual or group to seclude themselves, or information about themselves, and thereby express themselves selectively. It used to be called liberty and freedom.

So where does the outside world stop and privacy begin? What details of your life are you willing to share with strangers? How can you segregate different parts of your life so your boss doesn't see what you send to your lover and your child doesn't hear the terrible jokes you make with your friends? Privacy used to be implemented by doors, but with the internet that boundary doesn't mean anything anymore. The public space is in our pocket, going with us to the bathroom.

Surveillance is intimidating and it changes behaviour. Privacy is also the ability to exclude, nót to tell, to resist, to "put up a wall". The decency of not reading some else's letters or diary. Or to bring it closer to home: it's the possibility to nót to tell your parents where you were and what you did. It's the fact that you talk differently to your boss than to your lover, and that one doesn't have to know how you behave when you're trying to please the other. It's the possibility to send saucy pictures to your partner without the government looking at it. Privacy is also freedom from having to justify yourself constantly for an external viewer. Whatever you do, however proper a person you are, actions taken out of context, or presented in a certain way, can paint a very different picture than what you intend. And let's face it, we all get bad ideas sometimes.

Qu'on me donne six lignes écrites de la main du plus honnête homme, j'y trouverai de quoi le faire pendre. (If you give me six lines written by the hand of the most honest of men, I will find something in them which will hang him.) Cardinal Richelieu famously said, and things haven't changed since early seventeenth century.

Privacy on the net is tricky, since this is the place where we go to communicate, to be seen, heard, noticed, to connect, so sorting out privacy rights – yeah, I did that, but I don't want to give my name to it – can be hairy, because one can be tracked. There are many interpretations and applications of privacy but most of it concerns not being recorded, and not having the

internet follow you offline. Whatever happens on the net, should stay on the net and not follow you when you leave the keyboard.

Many argue, and there is much truth to it, that the Internet is a public space. Meaning that you should keep that in mind and behave as if you were in any other public space, in a cafe, a park or the town square. The problem is that this is a town square where everything ever said, whispered, or mumbled will be recorded to potentially all eternity, and can be replayed at any given time. Maybe harmless when uttered, but you don't know how it will affect you later. So even if you don't have anything to hide – you do. We don't give out our passwords to loved ones or to strangers in the street, so why should companies be able to access all our data?

The Internet doesn't only consist of open feeds but also "private" chatrooms, "private" messages, password protected sites, anonymous comments, email, cloud storage etc. There are also times when you do want to participate but not with full transparency and without stating your name, or you want to choose who to interact with, and how. However, data and information tends to leak. Also due to criminal activities, like with the Fappening[101] where iCloud password was guessed by attackers and naked pictures uploaded by celebrities downloaded by the attacker and spread on open fora. In which case one might argue that if you don't want this to happen, don't upload anything to the Internet, but that is the same reasoning as saying that if you don't want your wallet to be stolen, don't have one. It's not an option.

We don't always want to be observed and we take measures to prevent public scrutiny. These measures can potentially fail, but it doesn't mean there shouldn't be borders put up and that we can't request not to be observed. But that results in many grey areas.

For example, if the case of targeted advertising algorithms, such as the ones that the US chain Target is using. Legend has it, that they are so good at their predictions, that they know when I get pregnant. But can I ask them not to send advertisement, because I haven't told anyone yet[102]? Or because I don't really like that they are spying on me? The second question seemed to have worked out itself: they realized that people freak out when they feel stalked, so they started to send highly personalized coupons mixed with coupons for what the person would never buy, so that it

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101On August 31, 2014, 16 high profile celebrities had their private photos posted publicly on websites like 4chan and reddit, an event now known as the fappening. These photos were obtained by several different hackers through targeted attacks on Apple's iCloud servers which permitted the attacker to continually try different passwords without being restricted (brute-force attack). These photos were then traded on the deep web among hackers and eventually leading to several albums being leaked to the public. Out of the 100 celebrities allegedly hacked, 16 have been publicly posted and spread across the web. Shortly after the leaking several other members of the deep web community began leaking their private collections of celebrity photos thus resulting in an over two week event of celebrity photo leaks. All the leaked photos have been collected and posted on this website. See the wikipedia page of the event for more details. From: http://thefappening.rocks/

102http://www.forbes.com/sites/kashmirhill/2012/02/16/how-target-figured-out-a-teen-girl-was-pregnant-before-her-father-did/

looks random. As long as we both pretend, we are all fine. They know when to target us, and we get some discount. As it says in a New York Times article[103]:

> Whenever possible, Target assigns each shopper a unique code — known internally as the Guest ID number — that keeps tabs on everything they buy. "If you use a credit card or a coupon, or fill out a survey, or mail in a refund, or call the customer help line, or open an e-mail we've sent you or visit our Web site, we'll record it and link it to your Guest ID," Pole said. "We want to know everything we can."
>
> Also linked to your Guest ID is demographic information like your age, whether you are married and have kids, which part of town you live in, how long it takes you to drive to the store, your estimated salary, whether you've moved recently, what credit cards you carry in your wallet and what Web sites you visit. Target can buy data about your ethnicity, job history, the magazines you read, if you've ever declared bankruptcy or got divorced, the year you bought (or lost) your house, where you went to college, what kinds of topics you talk about online, whether you prefer certain brands of coffee, paper towels, cereal or applesauce, your political leanings, reading habits, charitable giving and the number of cars you own.
>
> (…) Almost every major retailer, from grocery chains to investment banks to the U.S. Postal Service, has a "predictive analytics" department devoted to understanding not just consumers' shopping habits but also their personal habits, so as to more efficiently market to them. "But Target has always been one of the smartest at this," says Eric Siegel, a consultant and the chairman of a conference called Predictive Analytics World. "We're living through a golden age of behavioral research. It's amazing how much we can figure out about how people think now."

How well it actually works, is of course a different question. And what the consequences are and what else this knowledge can be used for, is another. Because as a shopper, you are apparently fully profiled. The profiles are owned and maintained by the company but just like in the physical world, also in the data-world whatever can be locked, can also be unlocked, so even if I protect my data with a password or encrypt it, it can be cracked eventually. Is there a way to really really secure data? Or is this insecurity of the internet actually a feature, not a bug?

We create data, we upload our personal information to various sites, by using a software we sign terms and agreement we have never read, we use technology, but does that allow the other party to use our data or to invade our privacy?

And we give it all away freely. Most of the internet data, up to 70-80%, is user generated. Facebook is hugely popular. But as Cory Doctorow puts it, Facebook is "best understood as a giant behaviourist casino that designed to teaching you to undervalue your privacy." What you share can and will be used against you. Full disclosure is becoming the norm, but it's commerce driven, and difficult to predict what it will result in.

103http://www.nytimes.com/2012/02/19/magazine/shopping-habits.html?_r=0

Little Brother – sousveillance[104]

It's not only *them*, or Big Brother, who is watching us, we are spying on ourselves as well. We are the Little Brothers who watch and record eachothers every step. This power should not be underestimated. We all have cameras, we record and we have access to post it online. We can – and do – shame and hurt fellow citizens, which can have horrible results, destroy lives, get people fired, drive them to suicide, but we can also protect them.

With new technologies, such as the smartphone, we can turn our cameras on Big Brother. There are countless videos on police brutality in the US and across the world, there are platforms that fight for transparency, there is civic journalism. We can ask the governments collectively and corporations what they are doing, what their plans are, how they use their power, what they do with our data. Collective action can erupt revolutions, drive off dictators, get presidents elected. Even if the results are only temporary but they just as well result in long term changes.

It's also a question if the government and big corporations are entitled to "privacy". They own their data but government transparency is also a question that is being addressed, and rightly so. This type of civic participation can create evidence in cases of police brutality that cannot be neglected[105]. Journalist Heather Brooke for example reformed the British Parliament by exposing the expense receipts of parliament members[106]. It took her 5 years, a lot of ruling, and no one wanted to cooperate, obviously. In the end the digital scans were sent to the highest bidder, the Daily Telegraph and then the series of exposions began, since it turned out that ministers were declaring everything from new kitchens to buttplugs. This exposion was made possible because digitalization and sharing of information is of zero cost. You can put all information into a file, zip it, press send and share it.

And of course there are the artists[107] who make projects from surveillance and decide that if they are suspicious because of a surname, then they will record everything about themselves, all the time: http://elahi.umd.edu/track/

Why is privacy important?

104 From Wikipedia: Sousveillance is the recording of an activity by a participant in the activity typically by way of small wearable or portable personal technologies. The term "sousveillance", coined by Steve Mann, stems from the contrasting French words sur, meaning "above", and sous, meaning "below", i.e. "surveillance" denotes the "eye-in-the-sky" watching from above, whereas "sousveillance" denotes bringing the camera or other means of observation down to human level, either physically (mounting cameras on people rather than on buildings), or hierarchically (ordinary people doing the watching, rather than higher authorities or architectures doing the watching).

105 Digital Tailspin, Michale Seemann, Network Notebook series 2014

106https://www.ted.com/talks/heather_brooke_my_battle_to_expose_government_corruption?language=en Heather Brooke My battle to expose government corruption - TED

107 http://www.ted.com/talks/hasan_elahi?language=en

You don't have anything to hide. Very good, but it's not about you. It's about the possibility of having the option to hide something and not having to share everything with some anonymous surveilling party. It's about resisting those watching us.

When we loose privacy, we loose agency, loose liberty, we loose the ability to express freely what we think – in the words of Jacob Applebaum[108].

We are social animals and for centuries if you have done something that was against the morale of the group, or the liking of the leader, you would be kicked out and you could write off your chances to procreate or even to survive. We are terrified of rejection in general, so when the Online collectively tells you over and over again that you are a horrible person and should probably die, it is overwhelming.

Nowadays the first thing a prospective partner or employer will do, is to google the individual. If the online presence is not pleasing, it probably has severe consequences. But even if you don't have anything to hide, you do.

We don't want to have sensitive information out there that can potentially be abused at some point. You don't want to have ány information that can be later reframed, and be used against you. And all information will in time eventually come up in a different context. Be it that you grow older, change your mind, become vegetarian, change gender, many things can happen.

Privacy however is a rather new concept. We haven't really had it until we moved into cities among people we don't all personally know, and were rich enough to have our own space. And once we have learned the benefits of having our own safe space where no one knows what we are doing, we don't want to go back; however the extent to which invasion of privacy has become possible is even newer and even more overwhelming. Still, we want to keep our right to not being monitored – and potentially judged.

So you have the right to remain silent. Anything you say or do, can and will be used against you[109], and not only in a court of law. The problem is, that we cannot remain silent. The moment you use the internet, you leave traces and the thing is with data, that it can be reappropriated. With enough data anyone can be made look suspicious. Not by what you do, but by how it's framed.

There is also a positive aspect, that all this internet, the variety, the multitude of informations we come across creates a wider notion of "normal". Since we encounter on daily basis people from all over the world, we see fails, epic wins, strange behaviour that seems perfectly okay to some, we read different opinions, see people behave differently to what we are used to, we become arguably more tolerant to different opinions or ways of conducting oneself. When browsing outside our comfort zone, we don't want to be watched. It is also a very vulnerable state, opening up to new ideas, dawdle away from the flock.

But in the opposite case it's also true that you don't want to

108 Jacob Appelbaum is an American independent computer security researcher and hacker. He was employed by the University of Washington, and is a core member of the Tor project, a free software network designed to provide online anonymity.

109 https://en.wikipedia.org/wiki/Miranda_warning Miranda warning

be watched, when herd behavior takes over the individual. An opinion can be blown out of proportion online and people fire eachother up and rage over particular topics, (and in the end, according to Godwin's rule, inevitable someone will mention the Nazis or Hitler[110]). But when in the same discussion the extreme voices are not rewarded, the rage dies down and a more tolerant general opinion emerges. In such threads obviously nor the troll, nor the trolled person is happy to add their real identity to the incident.

No matter how welcoming or hostile the reaction to us is, there are cases when we just want our data to be deleted. When we change our mind for example, or when we are not the originators, when it's a malicious attack, or when it has a bad effect on us. The right to be forgotten, mentioned earlier, leads to allowing individuals to have information, videos or photographs about themselves deleted from certain internet records so that they cannot be found by search engines. Google actually doesn't delete the information, just unindexes it in the search – in the local search engine. On Google.com it's still the same. For the European Union (and Argentina) the right to be forgotten has been established in 2006, the rest of the world doesn't really have it as such.

This is however different form the right to privacy, which is about information that is not publicly known, whereas the right to be forgotten is about the removal of information that was publicly known at a certain time and not allowing third parties to access the information any longer.

Privacy – and here I mean anonymity – is important because we don't want to care continuously about the consequences of our actions, or the unforeseen possible future consequences, and the consequences shouldn't be permanent[111]. For these and many other reasons I don't always want to give my name to everything. Even if it's harmless, still, it's nobodies business what I like, what I am looking at, what I'm searching for.

There is a point to be made for those who cannot defend themselves. e.g. Teenagers, who don't fully realize what it means to experiment online, or people who are photographed offline without their consent and framed online in a different context[112]. They don't even know that they have become an object of public scrutiny and have no control whatsoever about their own representation, about their own virtual bodies as such – for the rest of the existence of that image online.

Why we might want to give up our privacy

To some extent it's a seductive idea to do away with all privacy and just make everything completely transparent, that everyone goes bare. Tear down the fences and show everything to

110 Godwin's rule: "As an online discussion grows longer, the probability of a comparison involving Nazis or Hitler approaches 1."

111 There should be maybe also something as "the right to be forgiven".

112 e.g. http://www.hystericalfeminisms.com/consent/ and http://www.peopleofwalmart.com/

everyone. Governments publish their data, so do companies, and we can be identified at any time in blissful trusting openness.

We can imagine the conflicts of interest and how long such a system could last without abuse. The internet is a great place to open up and live out emotion, to experiment with who we are, who we want to be, what we want to be seen like. As teenagers we have all done things we remember with some vague embarassment, and if we weren't tied down by age and fatigue, we would still experiment and not tell anyone about it the next day. It can mean that we impersonate someone from the other gender to see how it feels like, or visit dubious sites to see what we think about it, or make sneering remarks to see how much effect we can have on other people. But experimenting is not something that works well in full daylight, even if it's harmless.

And sometimes we are not that harmless. Sometimes we troll, abuse stalk, and harass and that is a sport played preferably without names.

The internet is also the communicational line between all of us. It is how we communicate with our friends and spouses because thought we see them regularly, we send messages, we call, we sext, we fight, we send sensitive information. It is part of the overall communication. Next to that, the mobile phone is next to us all the time. And since it is possible to listen in, or even to activate the camera, basically there is now nowhere to hide. It that sense we *are* bare. The problem is only that it's lopsided: only we are bare.

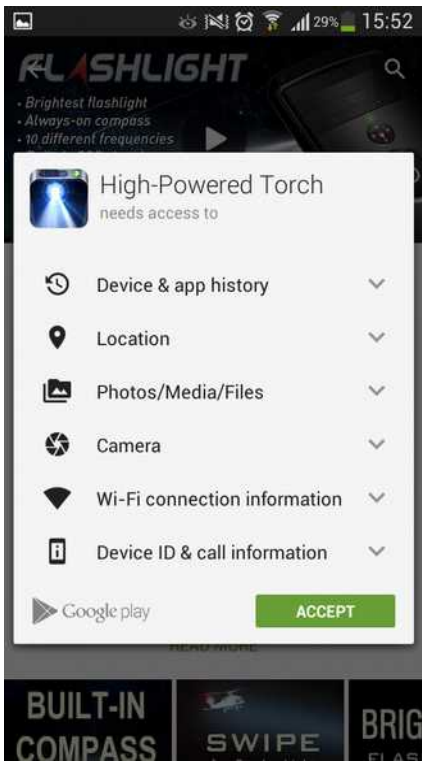
It's not only that we can be targeted individually, but we can be targeted as a group and the activity of the group can be destructed – so we can't organise ourselves. If all channels are monitored, how can we, the people organise a demonstration? How can we voice our opinions if we are surveilled?

It is however not just us, nice, law abiding citizens who communicate through these channels: terrorist, drug dealers and child molesters use it as well. The thing is, that giving up privacy means that we trust police to find criminals quicker, and that they only target criminals, not giving it up means that we are giving a cover for the criminals as well.

So it might be tempting to go for full transparency, to allow the police and government to look into everyone's account and to search out the criminals and find them more rapidly and we might believe that if one has nothing to hide, if you have done nothing wrong, the police will never target an innocent person, and no unjust persecution will take place... I'll leave it at this remark and let the reader ponder the naivety of this thought.

Is privacy possible?

Well, that's the problem. It isn't. It's dead. And we should get over it. It's beyond dead. With the current development of technology, expert Steve Rambam, former agent and private investigator, tells us that privacy as such is not an option online anymore. We can run but we cannot hide. We can make it difficult to be tracked down, but in the end everyone can be found and traced and identified, no matter how you encrypt, or what device you use. I must say, he is very convincing[113]. Nevertheless, it doesn't mean, that privacy *shouldn't* be dead or given up.



Tim Berners-Lee says that information boundaries are important, and we have to have technology which produces privacy. So although it's possible to identify everyone online, it is our duty to make it as hard, and therefore as expensive as possible for the security agencies – so it is possible to combat terrorism, but they don't create a overall archive on all of us.

There is no way to be traceless if you go online, you can only disappear if you go off the grid, if you leave the internet and society. Ironically the vast majority of the information out there is put there by us. We update, like, tweet, comment. And we allow our apps to have access to all kinds of sensitive data like location, contacts, phone status, camera.

An example: this flashlight app, which uses the flash in your camera plus comes with compass also needs access to my photos, location, etc. Why?

As a rule of thumb, it's for the money. It's mostly about money. They want to sell you stuff. Or they want to sell your data, because its worth money. To others who then want to sell you stuff.

We are on CCTV everywhere, and everyone is making photos and videos with their cell phones. The NSA is collecting our data, no matter where you are in the world, and it's not just the US government, most governments world wide collect data. Everything that can be collected. Who you talk to, what you say, where you are, how long the communication lasts.

This everything goes into databases, gets linked up together, so all the little bits and pieces of information that you spread out over the net, combine into a profile. Which can be used either by the owner of the database, or whoever the information is sold to, or whoever is able to break into the database and steal the

113Search for keynote speech Steve Ramban "Privacy is dead – get over it"

information stored there. Which is a lot of trust and completely out of our control.

The problem is, Rambam says, that once you have put data online, it's gone, it's out of your control and there is no way taking it back. You cannot change your mind. And now that is maybe okay now, and you don't mind that they know that you like chunky peanut butter and vote republican, you have an unusual sexual orientation and a serious disease, but the data you are putting out into the world can be replayed later and in a later context you don't know what it will do to you. Regimes might change and at a certain point you might be singled out for any of your beliefs, habits, or those you associate with.

We have all had convictions that we came back on, we have all changed our minds at some point or another about certain issues, we had relationships or one night stands which didn't turn out to be a good idea. We have said or even posted things we are not so sure about anymore. The problem is that computing power becoming so cheap as it is now, nothing has to be thrown away, everyone can be surveyed, and everything can be stored until the hardware and the software allow the data still to be read. Which translates as we are going to hell in a basket.

There are of course attempts to gain our anonymity back, such is for example The Onion Router or TOR which guarantees some security. The core principle of Tor, "onion routing", was developed in the mid-1990s by U.S. Naval Research Laboratory employees and it's still being funded to a large extent by the US navy. It is free software using a network to make it more difficult to track down a particular user, conceals a user's location and usage from anyone conducting network surveillance or traffic analysis.

Enabling anonymity is essential but we could have a look again at the complete opposite solution: transparency on the watchers' side. A radical approach would be to claim access to our data held in databases by governments and companies, watch the watchers, demand besides transparency also access, and safeguard our freedom while we still have it.

Or maybe, it is time for us to shift the paradigm and not ask how we can secure ourselves by becoming invisible or transparent, but ask how we can secure the trust among ourselves, how we can hard code it into the systems that are open source – encrypted and transparent, - but with the security that power shall not be abused.

Trust

Security is not about control. Security is about trust. There are many examples of how that can be true, Wikipedia is one. The collective knowledge is written collectively, on a global consensus.

Bitcoin is a failproof system, monitored by all users, and

with each user comes a new layer of security.

Open source software, where the code can be seen by all is more secure, since the possible mistakes and weaknesses of the system can be corrected by peers who have access to the code. No one person and no one organisation even can think of everything. It might be counterintuitive that transparency should make things safer, but it turns out to be so. More eyes see more, and more hands deliver better work.

In the end it's trust that makes the world go 'round. Without trust there are no relationships, there are no communities, there is no money, there is no commerce, there is no co-operation, and there is certainly no Internet. All interdependent systems of the net have an element of trust in them.

There are many gentlemen's agreements that keep the net up and running, among them that servers pass on your information, protocols that are obeyed, robot.txt, and there are any more examples. Trust is built into the fabric of the net, because servers have to forward messages and messages have to cross all kinds of servers. So machines tend to trust machines, if they are built that way, they have no reason not to.

But it would be naive to think that we can have a system based on nothing but trust and it will never be abused. That if I trust hard enough, and ask them nicely, criminals won't steal my credit card number, no one will ever listen in on my skype conversations, or activate my webcam without my knowledge, no government or corporation will track the footprint I leave on their server, and the viruses will go extinct. So it remains a balance of a cooperating system that has to have some sort of an immune system as well to deal with attacks.

Trusting the Machine

The next question is: do we trust the machine? We do and we don't. And probably we shouldn't, or at least not completely, because we have created them, and we know we can make mistakes. And because machines can also malfunction. Creations get occasionally out of control. According to the Bible, God created Man, and we got out of control, ate the forbidden fruit, and now here we are... If a god didn't manage to create something that didn't malfunction, how could we? Human creations are just as disobedient: the Golem of Prague got out of hand and started a random killing spree, the monster of Frankenstein killed off all his loved ones out of revenge, quite rightly so, I would say, because although Frankenstein gave life to the monster, he gave him a horrible, lonely life by making him a repugnant monster that everyone avoided – even Frankenstein. One has to take some responsibility for ones creation in the end.

The sculpture of Pygmalion actually didn't get out of hand, she seems to have become an obedient housewife. Pinocchio proved to be a horrible little puppet, but then after many adventures he learned to be a good boy and became a really nice human boy.

These are all fictional characters who were given life, and

started behaving in an unexpected and undesired way. We are not so far yet as to give *life* to our artefacts, but we are certainly on our way to give them intelligence.

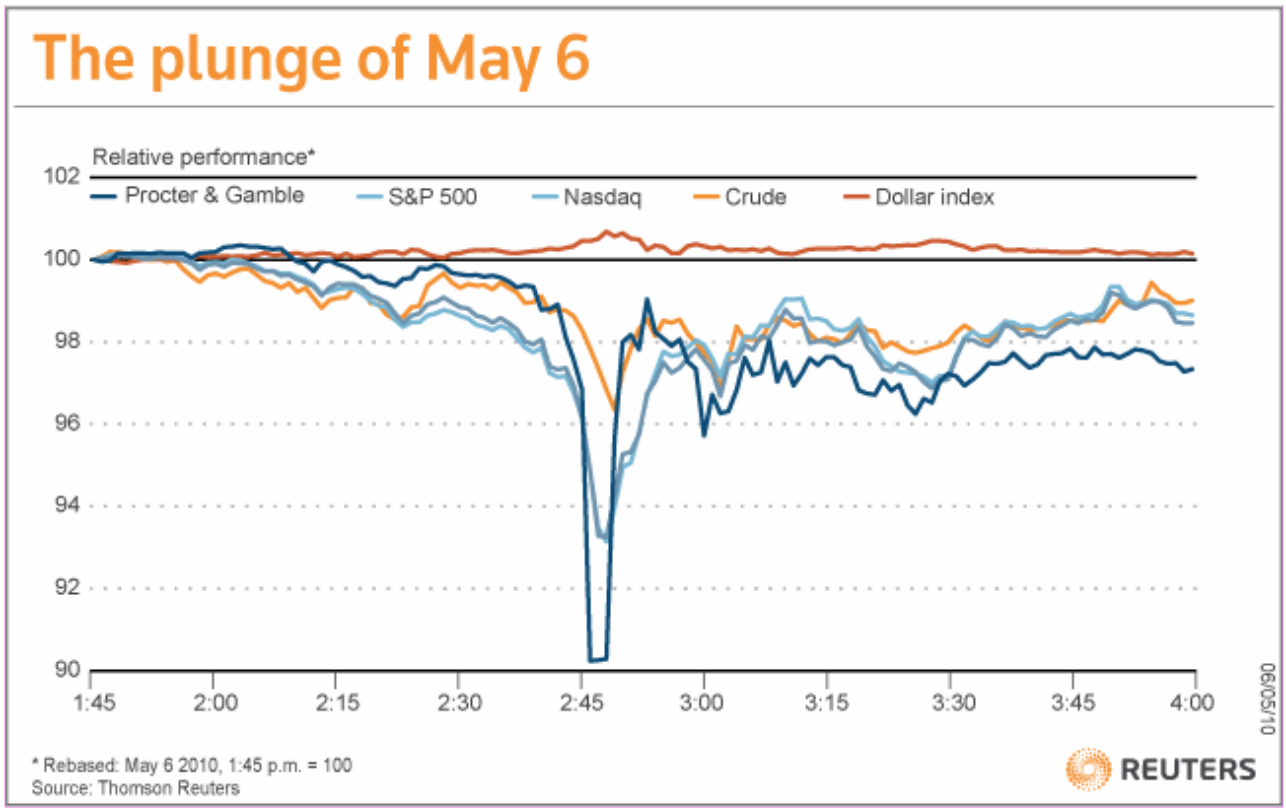
In Space Odyssey, the science fiction novel series of science (fiction) writer and futurist Arthur C. Clarke we meet HAL 9000, the sentient spaceship computer, or better said, artificial intelligence, who also gets out of hand. For the humans, being completely dependent on him in outer space, it poses sort of a serious problem when the computer stats killing them off.

"I can't let you do that, Dave."

And this problem is closer to home. We áre creating situations when we are completely dependent on computers, sensors, algorithms, or on some piece of digital technology. We want to put our bodies into self-driving cars, steered by computers, we put ourselves into flying boxes, steered by computers, we implant pacemakers, chips, prostheses into our bodies, we let our stock markets be governed for a large extent by algorithms we cannot fully predict or understand. All of that can get of course terribly out of hand[114].

A trading algorithm for example can create a glitch what we know now as a "flash crash". From Wikipedia: a **flash crash** is a very rapid, deep, and volatile fall in security prices occurring within an extremely short time period. (…) This type of event occurred on 6 May 2010 when a $4.1 billion trade on the NYSE resulted in a loss to the Dow Jones Industrial Average of over 1000 points and then a rise to approximately previous value, all over about fifteen minutes. The mechanism causing the event has been heavily researched and is in dispute.

114 For more see: Kevin Slavin on How algorithms shape our world, Ted talk http://www.ted.com/talks/kevin_slavin_how_algorithms_shape_our_world



Reuters graphic/Stephen Culp

Trusting machines is one thing, but having control over machines is another. Especially having control over the machines that have been implanted into our bodies sounds like an important idea. It has to be specified who has control over such machines and to what extent: is the owner the one in whose body the implant is, or the factory that made the machine, or the software company that runs the software on the machine?

At the same time we have to pump up some trust because technology is getting into more and more areas of our lives. So we have to be prepared when you make decisions about what you can or cannot do when we have implanted these prosthesises into our bodies. Do you own the machine that is in your body? Can you choose to update the software by some other company? There is a powerbalance here which can become nasty if users don't have rights[115].

115 Cory Doctorow - https://www.YouTube.com/watch?v=gbYXBJOFgeI&x-yt-ts=1422579428&x-yt-cl=85114404 around 40 min

Trusting Eachother

When I was growing up, my mother told me not to talk to strangers. That was a simple rule, easy to apply. Now the internet is full of strangers talking to eachother. Who not to talk to? What not to say? If someone you don't know sends a friend request? Or a request on LinkedIn? Or a very good deal to transfer their funds in Nigeria into your account? Who to trust...?

We are used to the individual scale to distrust, that there are burglars, pedofiles, and small groups of criminals who target the naive by email. This is a scale we understand, but now also a bigger scale is manifesting, in the form of marketing and advertising companies, governments, Google, Facebook, etc. who are all busy to put all of our movements into databases. There is also a lot of information one leaks about oneself without knowing, and it all goes into databases we don't have access to and it's not clear how this information is used or will be used.

Even if there is no bad intention and we disregard the surveillance and the possible threats of the internet, there is still the abundance of information to deal with. Even after filtering out the hoaxes and the alarmists, the intentional misinformation, there is still plenty of contradictory information left, and for every argument you find a counterargument, there are plenty reasons to believe and to be skeptical, so it seems that one always has to stay critical.

As Aaron Swartz, the American computer programmer, entrepreneur, writer, political organizer and Internet hacktivist, who is referred to as “the internet's own boy” in the documentary about him (documentary by the same name), said, the internet is good ánd bad, it depends on us what prevails. He used his skills to empower people to communicate with congress and overturn the threat to limit the freedom of the internet by imposing the Stop Online Piracy Act (SOPA) and his campaign was instrumental in preventing this act from being passed.

He advocated open access and through his action of opening up scientific researches, (which got him convicted,) allowed the development of a method for early detection of pancreatic cancer by a student – to demonstrate here the obvious advantages of open access.

However there still remains a balance between trust and transparency on the one hand and anonymity and security on the other and the scale cannot be tipped without any further ado to one side or the other. It is a complex system that has grown out of the substrate of these wires and as Doctorow says, all complex ecosystems contain parasites. There will always be destructive elements threats, and attacks, and the system will probably adjust itself accordingly. The question is only in which direction we should steer it.

5 to 2 – from Collectivity to Structure

Security specialist Bruce Schneider talked at the BBC future's World-Changing Ideas Summit 2014 about that hardware and software either allow everyone to spy or no one[116]. This capacity unfortunately doesn't break along the lines of morality or legality.

Now this magical connectedness that the internet means, that computers and networks are all linked up, is of course also a source of abuse. Everything we share can be intercepted, used for other purposes than intended. The NSA is spying on us, and as a matter of fact, everyone spying on everyone. The hardware allows this.

Schneier, security technologist and chief technology officer of Co3 Systems talks about these security issues, that the NSA captures data by various techniques. But the thing is, that if the NSA, or the FBI can use it, then also the Chinese, the Brasilians, and the who knows whom is able to do the same. Technological systems don't break along the line of our laws and morals. They have their own rules and capabilities. It's not that only the good guys are allowed to spy, unfortunately. There is increasingly one world, one network, one technology.

The choice is between security and surveillance. You can't just look at one use case, because there are many stories. Security, the protection of privacy should be more important because there are more good guys than terrorists and criminals.

So how we behave online, the decision made about the priorities, will also influence in the end what kinds of software and hardware is developed. The platforms people use, tend to flourish – for example since Facebook offers what people need, people flock to it and subsequently it will generate more profit which allows more research and more investment to keep people interested or develop new platforms for users to move on to. As water defines the bed it runs in, the collective preferences form the strurcture in which it will be contained.

5 => 1 How Collectivity Gives Rise to Online

The online world consists of us. We are who make up and create everything that we inhabit at the end of the day. But it allows also for the forming of communities, for social networks, actually everything online is getting more and more to be a sort of a social network. Pages, sites, blogs, videos, apps, pictures can be liked, shared and commented upon. That in turn creates the whole experience of the Online.

All the experiences condense into a global common frame of reference, a common lingo. Now the division lines don't lie between nations anymore, but between those who have access and

116 http://www.bbc.com/future/story/20141103-everybody-spies-or-nobody-does

those who don't. Those who know how to code and those who don't, those who are online, and those who are not.

We all have gained a new identity, a digital citizenship, and invest in our online life. We make our profiles attractive, build it up, and hope that it will be liked just as much as we would like to be seen and appreciated offline. Sometimes we even invest real money in the digital world – by buying guns, clothes, assessoires in a game, for instance.

Or a digital currency becomes real, like the emergence of Bitcoin, which is a currency that is completely virtual, but is now recognized by national banks. Another step to make the online life equally real as the offline one.

The new world across the glass of our screens has a different hierarchy than the offline world, but the two are converging. The digital elite of the computer industry and online communities, also called the digerati (or digiterati) are the opinion leaders, famous bloggers, editors, celebrities of the computer world, developers, etc., who have a growing influence on our thinking and further development of the world. They are not necessarily the traditionally very important persons such as kings, prime ministers and other leaders, but they are gaining in importance and are just as influential as those on this side of the glass.

What might be a big difference, is that the interconnected, wired world of the internet might result in a different type of society than what we know now. Governments could have a different structure and function, the political landscape could change, the self-organising capabilities of people could really be utilized.

From the collective presence online a new awareness could arise that makes us realize how interdependent we are on one another and that really, no man is an island. Our actions define the future of the internet and this medium we channel so much of our lives through will define the structure of our thinking and our society.

Epilogue

I wrote this paper because I wanted to map the internet, chart the different topics that we talk about when we talk about *The Internet*. As an internet artist who is on the border of pre-internet and post-internet, I thought it would be important (and interesting!) to outline the realm and get acquainted with its topology. What I have learnt, is that it is a liquid, rapidly and continuously changing environment. By the time you are reading this paper, it is already very much outdated.

There are three major trends that I can distinguish:

- the internet changes the way we think, and our consciousness, with the possibility that more minds connect and the danger that we disconnect form our body
- it shifts us towards a different idea of possession, from ownership to access, that will change the economy. In the same manner, the way we relate to "stuff", the digital material is becoming a real experience, but again, not an embodied experience
- the structure harbors the danger of surveillance and the abuse of power

To elaborate on these ideas, I would say that:
the introduction of the internet will cause a similar shift in thinking as what reading has caused. Literacy allowed us to think in abstract terms, to introduce logic and rationality into our thinking processes and it allowed for information to spread at an unheard of pace across time and space.

The internet rewires our thoughts just as much. The Euclidean space, where the shortest distance between two points is a straight line, no longer holds true. The internet organizes our thoughts along different lines than a book or a library, it is a more abstract, associative organisation, more interconnected and more flexible. What is in a book, doesn't change, whereas wikipages can be updated more quickly and more importantly with a collective approval. Information is created and spread so rapidly, and so differently than in the print era, that its influence is felt everywhere.

We are shifting from the need for ownership towards a preference for access. We don't need to háve a movie as long as we can watch it, for example. We don't necessarily want to own the music we listen to, as long as we can stream music we like. Owning something is not a relevant term anymore, especially since we are talking here about abstract, digital material, which is really hard to pin down and regulate and own in a classical sense of ownership.
All in all our future is connected with the internet and all

things digital, but I think it's very important not to forget that we have a body. The new generations play Minecraft as their parents used to play Lego, and the experience is the same, still, missing the physical aspect will have it's consequences.

Probably the internet will be a more allround experience in the future, visible not only across the screen, but in many other places as well. So our interaction with it won't be limited to tapping on a keyboard, but the Online will extend to more places than until now, a bigger realm, an all-surrounding, immersive environment.

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Cory Efram Doctorow (born July 17, 1971) is a Canadian-British blogger, journalist, and science fiction author who serves as co-editor of the blog Boing Boing. He is an activist in favour of liberalising copyright laws and a proponent of the Creative Commons organization, using some of their licenses for his books. Some common themes of his work include digital rights management, file sharing, and post-scarcity economics.

Cyborg (short for Cybernetic is a theoretical or fictional being with both organic and biomechatronic parts. The term was coined in 1960 by Manfred_Clynes and Nathan_S._Kline
Net neutrality (also network neutrality, Internet neutrality, or net equality) is the principle that Internet service providers and governments should treat all data on the Internet equally, not discriminating or charging differentially by user, content, site, platform, application, type of attached equipment, or mode of communication.

DDOS-Attack In computing, a denial-of-service (DoS) or distributed denial-of-service (DDoS) attack is an attempt to make a machine or network resource unavailable to its intended users. One common method of attack involves saturating the target machine with external communications requests, so much so that it cannot respond to legitimate traffic, or responds so slowly as to be rendered essentially unavailable. Such attacks usually lead to a server overload. In general terms, DoS attacks are implemented by either forcing the targeted computer(s) to reset, or consuming its resources so that it can no longer provide its intended service or obstructing the communication media between the intended users and the victim so that they can no longer communicate adequately.

Dunbar's number is a suggested cognitive limit to the number of people with whom one can maintain stable social relationships. These are relationships in which an individual knows who each person is and how each person relates to every other person.(...) By using the average human brain size and extrapolating from the results of primates, he proposed that humans can only comfortably maintain 150 stable relationships.

The Fappening On August 31, 2014, 16 high profile celebrities had their private photos posted publicly on websites like 4chan and reddit, an event now known as the fappening. These photos were obtained by several different hackers through targeted attacks on Apple's iCloud servers which permitted the attacker to continually try different passwords without being restricted (brute-force attack). These photos were then traded on the deep web among hackers and eventually leading to several albums being leaked to the public. Out of the 100 celebrities allegedly hacked, 16 have been publicly posted and spread across the web. Shortly after the leaking several other members of the deep web community began leaking their private collections of celebrity photos thus resulting in an over two week event of celebrity photo leaks. All the leaked photos have been collected and posted on this website. See the http://en.wikipedia.org/wiki/August_2014_celebrity_photo_leaks" \t "_blank for more details. From: http://thefappening.rocks/

Filter bubble is a result of a personalized search in which a website algorithm selectively guesses what information a user would like to see based on information about the user (such as location, past click behaviour and search history) and, as a result, users become separated from information that disagrees with their viewpoints, effectively isolating them in their own cultural or ideological bubbles. Prime examples are Google Personalized Search results and Facebook's personalized news stream.

Firmware In electronic systems and computing, firmware is program code and data stored in persistent memory. Typical examples of devices containing firmware are embedded systems (such as traffic lights, consumer appliances, and digital watches), computers, computer peripherals, mobile phones, and digital cameras. The firmware contained in these devices provides the control program for the device.

I, Pencil, an essay by Leonard Read first published in 1998, is written in the first person from the point of view of a pencil. The pencil details the complexity of its own creation, listing its components (cedar, lacquer, graphite, ferrule, factice, pumice, wax, glue) and the numerous people involved, down to the sweeper in the factory and the lighthouse keeper guiding the shipment into port, arguing that no central person is making decisions rather an invisible hand, which should be trusted to govern our actions. "Permit these creative know-hows freely to flow. Have faith that free men and women will respond to the Invisible Hand. This faith will be confirmed. "

"Information wants to be free" is a slogan of technology activists invoked against limiting access to information. According to criticism of intellectual property rights, the system of governmental control of exclusivity is in conflict with the development of a public domain of information. The iconic phrase is attributed to Stewart Brand who, in the late 1960s, founded the Whole Earth Catalog and argued that technology could be liberating rather than oppressing.

Sousveillance is the recording of an activity by a participant in the activity typically by way of small wearable or portable personal technologies. The term "sousveillance", coined by Steve Mann, stems from the contrasting French words sur, meaning "above", and sous, meaning "below", i.e. "surveillance" denotes the "eye-in-the-sky" watching from above, whereas "sousveillance" denotes bringing the camera or other means of observation down to human level, either physically (mounting cameras on people rather than on buildings), or hierarchically (ordinary people doing the watching, rather than higher authorities or architectures doing the watching).

User Generated Content is any form of content such as blogs, wikis, discussion forums, posts, chats, tweets, podcasting, pins, digital images, video, audio files, and other forms of media that was created by users of an online system or service, often made available via social media websites

TCP/IP is a protocol that defines how data is transmitted through the internet. TCP breaks the data into packages and reassembles them at the endpoint, IP makes sure the packages are addressed properly. More at http://www.w3schools.com/website/web_tcpip.asp

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