

The International Committee for the History of Technology 33rd  
Symposium Transforming Economies and Civilizations  
The Role of Technology

**Author**

Robert Hauser, M.A.

**Title of the Presentation**

The fears and hopes in the history of media and their impacts on technology

Since the 90s of the last century the global spreading of the Internet was accompanied by global changes of societies from industrialised societies to post-industrial, information based societies. This development was reflected intensively in the literature. In the following a wave of books and articles were published dealing with the relationship between new information and communication technologies (ICT's) and culture. This relationship is often particularly described as a transformation process of cultures caused by the Internet technology.

At this stage - looking back to the 90s - it is clarified that a reciprocal process took place: The Internet not only influenced and transformed societies and cultures but also culture has – and still does – shaped the Internet. In this cultural shaping process, the hopes and fears which are connected with the potentials of the Internet are very important. The historical review shows that this is also true for other new media. With every new invention of media technology pessimistic and optimistic views existed contemporaneously regarding the cultural impacts of the new media technology. From Gutenberg's invention of the letterpress – and the possibility to print more and faster than before – to the Radio and Television to ARPA's development of the Internet not only media and media technology changed but also their impact on societies. Even though the use of a book differs significantly from the use of technologies like Radio or TV and even more from ICT's, the status of a new medium seemingly leads to certain – often exaggerated – hopes and fears among societies and their cultures. From a historical perspective it becomes apparent that

both views in their extreme versions were wrong. Neither the pessimistic fears nor the optimistic visions could be confirmed.

In my presentation I will outline the cultural geneses and funktion of these optimistic visions and pessimistic fears concerning new media. The emergence of new technologies seems to lead automatically to cultural expressions in terms of hopes and fears. This can be seen as the initiation for a necessary communication process among a given culture. This process forces the society to deal with the new technology. Due the reflection on these communication processes and through installing specific social practices for using these new technologies cultur plays an important role. On the contrary, due to social practices, media technology is culturally shaped in the long run. In my presentation I will give you an short overview over the development of media. Furthermore I will show different aspects of cultural impact in the process of adopting new media technologies into society.

## **The Letterpress**

The Letterpress invented by Johannes Gensfleisch zur Laden zum Gutenberg in 1448. With the invention and upcoming of the printing press Europe encountered its first phase of mass consummation<sup>1</sup>. The printed alphabet in combination with Gutenberg's letter press transferred spoken language in a visualised code which was easy to distribute and could easily transported<sup>2</sup>. Printed books were by this the first uniformed, repeatable and serial production items. By that they initiated the modern price system, and created the paradigm of a uniform consume product. They changed the academic World by providing cheaper, more and better transportable knowledge, which could be afforded by more people then before. Furthermore, the transportable format of the book gave rise to a more individualistic society<sup>3</sup>. One of the first books printed by Gutenberg was the Bible. Between 1452 and 1454 he printed ceveral hundred Bibles. That gave more people of his time the possibility to study the Bible by themselves. That evolution broke monopolist powers of libraries as institutions and by that the power of their privileged users the clerics and the aristocracies in the long run<sup>4</sup>. They, of course, knew that this meant the end of their

---

<sup>1</sup> See Marshall McLuhan, *The Gutenberg Galaxy* (University of Toronto Press, 1962), 190.

<sup>2</sup> *Ibid.*, 219.

<sup>3</sup> *Ibid.*, 206.

<sup>4</sup> *Ibid.*, 206.

monopole of knowledge and tried to stop that process. At the beginning the book production was a huge risk and needed markets which had to be as big as possible if it should not fail. The book and the book market were therefore from the beginning on related with mass production and mass selling. To keep control over the markets the church in cooperation with the aristocracies inserted a new passage in the Bible saying, that it is a sin to own more money than one can spend by himself. This meant a direct attack against the upcoming class of trading people and the establishment of markets. The prohibition of the Catholic Church to translate the Bible in profane languages can also be seen as a measure to keep control over knowledge because at that time only few people could read and understand Latin or Hebrew. Translating the Bible like Luther did, opened the Bibles content to a much larger audience.

## **Electricity**

The next wave of hopes and fears emerged with the invention of electricity. When Edison's generator was coupled with Watt's steam engine, large scale electricity generation became a practical proposition. His improvements to steam engines were patented over a period of 15 years, starting in 1769 and his name was given to the electric unit of power, the Watt. The powers of the electron evoked hopes and fears related to these new powers. "Electricity was embraced as a transformative force, one that promised freedom, democracy, and, by implication, enlightenment."<sup>5</sup> When this new technologies began suffusing the public imagination from the mid-nineteenth century on they appear to support the claims of the spiritualist mediums such as talking to the dead. These fantasies of supernaturally enhanced cultural transmission of electricity emerged sharply in the literature of that time, for example in Mary Shelley's *Frankenstein*, reverberating between the poles of physical research and science of the occult<sup>6</sup>. People at this time, inspired by the experiments of the Italian scientist Luigi Galvani, believed in the coherence between electric energy and "nervous energy" or the divine "spark of life". Galvani's experiments concerning the electricity and muscular motion, performed in public on criminals and amputated

---

<sup>5</sup> Marita Sturken and Douglas Thomas, "Technological Visions and the Rhetoric of the New," in *Technological Visions: The hopes and fears that shape new technologies*, ed. Marita Sturken, Douglas Thomas, Sandra J. Ball-Rokeach (Philadelphia: Temple University Press 2004), 3.

<sup>6</sup> See Pamela Thurschwell, *Literatur, Technology and Magical thinking, 1880-1920* (Cambridge University Press 2001), 3.

limbs, left a strong impression on the people of that time. Electricity was shown as supernatural force strong enough to overmaster even death.

**Telegraph and Telephone:** New Technologies are often seen as toys in the beginning

In 1844, Samuel Morse sent the first message of any distance by Telegraph – about 40 miles which stated –“What hath God wrought!”.<sup>7</sup> By this he invented the first long distance, instant communication system the world has known. But the people of his decade did not realise the tremendous breakthrough this technology meant to mankind. At the beginning Morse had trouble convincing anyone to invest in his telegraph. He spent five years “lecturing, lobbying, and negotiating” before he finally convinced the US Congress to pay for the construction of the first telegraph line<sup>8</sup>. Even when it was operating he had difficulties finding customers interested in using it. The spiritualistic movements which believed in power of electricity came to a renaissance in the beginning of the 19<sup>th</sup> century. Especially in North-America some spiritual movements evoked nearly to Morse’s invention of the Telegraph. One very famous was the case of the Fox family called the “Rochester knockings”. In the night of March 31 in 1848 the Fox family happened to hear knockings or rappings which they believed came from a ghost or a spirit who tried to communicate with the livings. “Within a decade, the movement would attract thousands of avowed believers, souls searching for spiritual truth who now turned to the century’s other most remarkable telecommunication device – the clairvoyant medium.<sup>9</sup>” The adherents of spiritualism basically believed the dead were in communication with the living through mediums who channelled the messages. “Significantly, from the earliest moments of the movement, spiritualists associated the powers of mediumship most closely with woman, and especially teenage girls.”<sup>10</sup> Later on the movement expanded into a national and international phenomenon that assumed many forms and believes. For the people of the mid nineteenth century talking with the dead trough knocks and

---

<sup>7</sup> Lewis Coe, *The Telegraph. A History of Morse’s Invention and Its Predecessors in the United States* (North Carolina 1993), 32.

<sup>8</sup> See Brian Winston, *Media Technology and Society. A History: From the Telegraph to the Internet* (London 1998), 27.

<sup>9</sup> Jeffrey Scone, “Mediums and Media,” in *Technological Visions: The hopes and fears that shape new technologies*, ed. Marita Sturken, Douglas Thomas, Sandra J. Ball-Rokeach (Philadelphia: Temple University Press 2004), 49.

<sup>10</sup> *Ibid.*, 51.

raps, was only slightly more miraculous than talking with the living about distances through clicks produced by Morse's Telegraph.

In 1876 Alexander G. Bell demonstrates the first telephone. Likewise Morse he could not find anyone to buy it. A short internal note by the Western Union in 1876 states: "The 'telephone' has too many short-comings to be seriously considered as a means of communication. The device is inherently of no value to us."<sup>11</sup> When Bell offered his patent of the telephone to Western Union they refused it. Consequently, AT&T was formed to commercialize the telephone, and by the time Western Union realized the potential of the telephone, it was too late. AT&T had built up specific expertise that Western Union couldn't replicate. AT&T ended up purchasing Western Union. Concerning the fears and hopes connected with these two inventions they came up quite late as the technologies had already created a market. Both inventions held out the promise of previously unimaginable contact between people and suggested that science could help annihilate distances that separated bodies and minds from each other. This connection between innovative technologies of communication and intimate bonds between people seemed to help intimacy to take on new, distinctively modern forms. The desires invested in the promise of communication technologies, imbued with religious associations, have thus been particularly over-determined, precisely because of their capacities to connect people across distances and to create new forms of mobility. Although the Telephone was a huge economical success people had their problems with that way of communication. In the first world war the importance of the telephone was increasing but people were still suspicious of the telephone. Some people accused the telephone for being guilty for the market crash in 1929. Without the technology of the telephone these panic-sells of stocks at the black Friday would not have been possible in such amounts. During and after world war II the importance and significance of the telephone is even more increasing but still it was proscribed to discuss or to talk about certain things on the telephone. The German lexicon of behavior from 1954 tells us: never answer announcement of marriage, birth or death on the telephone! The Telephone was seen as a rather cold and impersonal way of communication.

At first, both inventions were seen as toys without any value. In the case of the telephone for example we have a

---

<sup>11</sup> Douglas F. Aldrich, *Mastering the digital Marketplace* (New York 1999), 79.

## **The Video-Telephone:** The Failing of new technology

In contrast to the latter presented technologies which were successful, although they could not fulfil all expectations, they have also been technologies that were fully functioning and offered similar opportunities, but were refused by the customers. One of these promising technologies was the Video-Telephone.

Jules Verne and other visionary people dreamt of a visualised Telephone. At the Berlin Radio Show (Funkausstellung) in August 1934 the first Video-Telephone was presented by connecting two video cabins one in Berlin and one in Munich. It was the first device that combined the functions of telephone and television; a phone with a screen. The Video-Telephone by then called Telephot, was invented by German Pioneers in the field of radio technology like Manfred von Ardenne and institutions like Deutsche Reichspost. The Telephot was technically working, although quality of sound and image was quite low. It worked like that: the customer was sitting in enlightened cabins and staring on a white screen of glass where you could see the portrait of your telephone partner divided in 90 lines (provided by a Nipkow disk). You could talk to him through a common Telephone and see him talking at the same time. This, for that time quite sophisticated service was offered by the Reichspost as regular service by a connection between Berlin and Leipzig from 1936 and in 1938 also between Munich and Hamburg. In 1939 with the beginning of World War II the military needed all the capacity of the connection cables and the service was cancelled. But even as the service was regularly available only few people used it after the first euphoric reactions in the starting of the service were cooling down. The service was not even expensive; it cost double the price of a local call with normal telephone. But for most people it was too inconvenient to leave their houses and go to one of the two cabins that were installed at the main post offices, just to see a few flickering pictures. They rather stayed at home and used their normal home phones without video. And even nowadays in the year 2006 we don't really have Videophones, although I had a Cellphone which had an extra camera installed for that purpose I never used it or even tried it out. This little Episode shows us the importance of culture if a technology is not welcome by the people of a given culture it has no chance.

## **Comic Strips:** “The Medium is the Message” (Marshall McLuhan)

Comic Strips caused another wave of fear at Americas society in the 30s.

According to many experts, the precursors to modern comics were the satirical works of artists like Rudolph Töpffer, Wilhelm Bush, Christophe, or Angelo Agostini (first Brazilian comic artist). Although I guess the ancestors of these caricatures have been originally ironical paintings series from Japan or even Egyptian drawings. However Around 1900, the terms "comics" and "comic strip" came into common use in the United States. It named the strips of pictures being printed in magazines and newspapers at that time which were all funny or comic. At first newspaper comic strips were called "the funnies" and later the term comics became more popular. Early American comic books were often collections of reprints of newspaper comic strips. Many of these comic strips at this time was not made for children but adult readers of those newspapers and by that they where not only funny or ironical but also often quite rude or even brutal. Actually these Comics were more brutal then every other content in any other media of this time except maybe the Bible. So this was the first confrontation for consumers with violence in media. Soon there could be heard critics about these Comics, stating that they were bad for people, especially for children and for society in general. These critics started even to blame Comics for increasing violence and criminality in the American society of the 30s and 40s. As McLuhan puts it: even the stupidest prisoner could moan: “That Comics made me doing this.”

And this is another point which we often don't make clear enough to ourselves. Every new Medium needs new culture and social techniques to handle it properly, we have to learn how to use them. McLuhan gives us a good example on that. When missionaries or sanitaris tried to use movies for education purposes in Africa, they recognised quite early that their African auditory had a different perception of these movies. They where not able to follow the whole plot of the movie they just recognised separated scenes, like a chicken for example that was not really part of the plot but running in the background of the movie all the time up and down. When they were ask afterwards what they had seen in the movie the answer was: “We saw a chicken”. When they where ask if they had seen the man which the story was actually about and what he was doing; he was draining pools, picking up all empty tins and putting them away, (to minimize the chances of being infected by bad water

and reducing brood places for insects) it appeared that they had seen the man but couldn't make a whole story out of it, they hadn't seen a whole frame, they had inspected the frame for details. This is because a sophisticated audience, an audience that is accustomed to the film, focuses a little way in front of the flat screen so that you take in the whole frame. In this sense a film or even a picture is a convention. One has to look at the picture as a whole first and this African people did not do that because they were not accustomed to pictures. When presented with a picture they began to inspect it, rather like a scanner and go over it very rapidly. So McLuhan uses this as an evident that Literacy gives people the power to focus a little way in front of an image so that we can take the whole image or picture at a glance. Non-literate people have no such acquired habit and do not look at objects in our way. Rather they scan objects and images as we do the printed page, segment by segment. Thus they have no detached point of view, they are wholly with the object and go empathically into it. The eye is used, not in perspective but tactually, as it were. (McLuhan: The Gutenberg Galaxy, S. 36-37)

The difficulties these natives had with films help us to see that every media needs a special convention or habit to fully understand and to sense it properly.

**Television:** the fears of mind control by radio waves and television

On Sept. 7, Farnsworth transmitted his first successful electronic TV images in San Francisco. In its first incarnation, television was primarily marked as a family activity. One of the most watched political events in the United States at mid-century, the Army-McCarthy hearings coincided with the early period of the reception and evaluation of television as a force in society. Although optimistic rhetoric often attends the rise of new technologies, worries and fears about the power of television pervaded coverage of the hearings. The popular press expressed concern that Edward R. Murrow and Joseph McCarthy exercised unrivalled control over television viewers. Murrow and McCarthy became condensation symbols in a new struggle over control of the airwaves, and their highly publicized standoff established discursive rules for thinking about the power of audiences, journalists, and politicians.



## **Computer, Internet:** The same fears again and the a historical aspect

The first famous microcomputer was developed by Ed Roberts he and a few friends founded in his garage Micro Instrumentation and Telemetry Systems (MITS) The MITS Altair 8800 was a microcomputer design from 1975, based on the Intel 8080A CPU. Sold as a kit through Popular Electronics magazine, the designers intended to sell only a few hundred to hobbyists, and were surprised when they sold over ten times that many in the first month. Today the Altair is widely recognized as the spark that led to the personal computer revolution of the next few years: The computer bus designed for the Altair was to become a de facto standard in form of the S-100 bus, and the first programming language for the machine was Microsoft's founding product, Altair BASIC. In 1969 the first network connection between two mainframes between UCLA and the Stanford Research Institute is established; the ARPANET was born. The Internet is not an invention of one person but has developed quite organically. The history of the Internet and especially the representation of that history in today's science literature shows perfectly the ahistorical framework in which technology has been understood. One could argue, in fact, that discussions about technology have been ahistorical throughout history. One good example for this, is the history of the Internet. In many books and articles one can read the myths' about the development of the Internet to provide a function able communication system in the case of a nuclear strike in the cold war, and by this it had in the first place military characteristics and purposes. So tells us for example in Manuel Castells in his famous book "The Rise of the Network Society" and many others. Not earlier than in 1996 a book was published that documented the invention and development of the Internet technology by interviewing the people who were involved in that project. The book "Where Wizards stay up late. The Origins of the Internet" was the first approach to examine the history of the internet beyond the legends and myth that were circling through the Internet and published by newspapers and several books. The truth is that the ideas that lead to the invention of the Internet had never been military. Although it was at first funded by the ministry of defence (ARPA) it was from the beginning on conceptualized for science purposes. The idea was to connect computers or mainframes – which were at this time very expensive – to a communication network to have more calculating power and to enlarge the efficiency of the few computers that existed at this time. These few mainframes were primarily

located and used by Universities the established network connection allowed sharing their power with other Universities or institutions. Yet, the history of the Internet is infinitely more complex and specific to its time. As it can be seen on this example, history matters in very important ways to a clearer understanding of technological change.

Concerns about the impact of the Internet on users, for instance, echo those that greeted the telegraph, telephone and television. When, for instance, the 1996 Communications Decency Act, an act that was in clear violation of the first Amendment, passed in the U.S. Congress because of political hysteria about pornography on the Internet, it was an echo of congressional hearings in the 1950s about television causing juvenile delinquency.

The internet, prognosticators stated, would solve the long-standing problems of education, make bureaucracies function better, create a global community through increased connectivity, empower the disenfranchised, and forever alter the roles of consumer and producer. Further on the term cyberspace was created which was a metaphor of new land, new space and new opportunities like cybersex. The darker fantasies about its capacity to transform human relations converged in news stories about the Internet portrayed as dangerous world in which criminals and paedophiles took advantage of trusting users, government and corporations slowly eroded privacy and freedom; the media proclaimed correlations between Internet use and higher rates of depression and social isolation. Critics in Sociology and Psycho analytics predicted intellectual and social poverty of long time Computer-users leading to the rise of a computer-nerd society. The ahistorical aspect of technological visions means that many of the fears and hopes borrow from the history of anxieties about life in modern society, yet presented as if they were new and unique. This hopes and fears presented without that historical context may lead not only to a kind of media frenzy, but also to specific kinds of restrictive and often misguided policy making. Ignoring the historical dimension of hopes and especially fears prevents us from the possibility to learn from history.

## Short Summary:

As I have shown so far there are lots of impacts between technologies, societies and their cultures.

- First of all we have seen that new technologies have to create their own market. At the beginning they have to struggle against traditional technologies and social or cultural practices of doing things. In the first place they have created needs and desires and in the second place markets; regarding the desires it meant not only consumer desires but also social or cultural ones like for instance communication over long distances.
- One rule seems to be that only technologies have a chance to create new needs and desires if there is a society and a culture that is ready for these new technology and embrace them. So it seems that one way cultures can shape new technologies is by the decision of consumers to buy a new technology or not. Remember the early problems with the establishment of the telegraph and the telephone. This consumer decision is correlated with the desires of the contemporary society.
- The next big topic was the special reception character of each medium. McLuhan's example of the African natives and their problems understanding photographs has shown that his thesis "The Medium is the Message" seems to be true. Every new medium needs special forms of perception which have to be trained or at first developed by the users of these new technologies. This means people have to learn new social and cultural practices or expertises to handle new mediums completely.
- The latter presented topic encompasses that often the historical context was neglected in the social discourses about new technologies.
- And the last and overall topic; the fears and hopes being uttered by the upcoming of new technologies are always almost the same (which is connected to the three latter points).

By reviewing these five mentioned topics it becomes quite clear that most of the positive and negative visions – and by that the hopes and fears – are not directly linked to new technologies. Instead it seems that technological development is one of the primary sites (spaces) through which a given society can chart the desires and

concerns of a given cultural context and the preoccupations of particular moments in history. The hopes and fears which we could find at any times especially these connected to new media technology seem to be imagined solutions for deeper problems of a given society in a special historical context. Ironically, this relentless optimism in new communication technologies creates an endless circle of disappointments, since no new technology fulfils such expectations.

Visions of technology have a long history of such binary thinking.

**The question is now**, why are emergent and new technologies the screens onto which our cultures project such broad array of social concerns and desires? And why is technology the object of such unrealistic expectations? The belief that, communication technologies can promote human connectivity is coupled with the fear that actual human connection has been irretrievably lost (neighbours, family etc.) could be one reason.

**Technological change is popularly understood as irreversible.** Once a technology is used, it is imagined that its effects can be undone. According to these narratives it would seem there is no turning back, from the first moment of contact with new technology. For example the fear of children's contact with computers, and by that the capacity of that computer to transform children into something/someone else, or, in the least, to provide them with experiences, good and bad, that change them in unalterable ways. Furthermore, by creating new needs and desires new media technologies often convey a shift from former traditional ways of doing things and the new possibilities offered by that new technologies. This causes automatically a sense of loss which leads to strong anxieties concerning the impact of new technologies on connectivity communication and community. New communities are continually made possible by the innovations of new communication technologies, yet as these new communities form fears surface that these new communities will undermine existing networks of connectivity, the family, friends or the neighbourhood. Since the impact of communication technologies is often understood as irrevocable, these concerns are magnified.

**That sense of loss may form one basis for the power awarded technology in technological visions.**

The visions of technologies as life-transforming, in both transcendent and threatening ways, have been reiterated and uttered again and again throughout history, from the

development of the printing press to the computer; from the telegraph to the cell phone; from photography and cinema to television. That shows that new technologies always take the place of more established ones in a seemingly endless cycle and the hopes and fears are just symbolic expressions of loss and complex and often complicated problems of given society and a special historical context.