

Home Computer on the Line - The West German BBS Scene and the Change of Telecommunications in the 1980s

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1. Introduction

On the evening of 16th June 1987, the system operators of five German bulletin board systems (BBS) received unexpected visitors. Accompanied by the police, officials of the “Deutsche Bundespost” (Federal Post Office) searched the homes of the juvenile computer enthusiasts for evidence of violations of the “Fernmeldeanlagenengesetz” (Telecommunications Device Act), in particular the connection of modems or acoustic couplers to the telephone line without official postal approval. The postal officials seized the devices and the home computers (Chaos Computer Club 1987).

The young people visited by the Bundespost had experimented with their home computers. They had connected them to the telephone network to enable other home computer owners to call them and exchange data and texts via the telephone line. Thus, the home computer was no longer just an isolated device, but a communication tool from which the callers could connect to each other. On such a bulletin board system, home computer users could exchange files, have discussions and gain access to information otherwise difficult to get.

For some politically-minded computer enthusiasts of the 1980s like the members of the Chaos Computer Club in Hamburg, BBS seemed the ideal medium for a “digital counterpublic”. BBS were a freely accessible and non-censorable medium, ideal for publishing politically relevant information which otherwise would have remained unpublished. BBS and

electronic telecommunication therefore had a huge democratic potential for them.

However, these computer enthusiasts were not the only group with great hopes for the future of telecommunications. Nationally and internationally, telecommunications was considered a key economic playing field of the future. The West German government had its own plans for the future of the sector: in its view it was crucial to secure the long-term international competitiveness of the West German economy. The hobbyist computer networking from below was difficult to reconcile with these plans.

For several years now, home computing and computer networking in the 1980s has attracted interest from historical researchers. In the United States in particular, the history of the Internet—from the military-inspired ARPANET of the 1960s to computer networking in the 1990s—has recently been complemented by research into the diversity of private and commercial computer networking in the 1980s that created the basis for the breakthrough of the Internet in the next decade (Campbell-Kelly / Garcia-Swartz 2013; Haigh / Russel / Dutton 2015; Driscoll 2014).

In this paper, I will explore the relationship between the West German hobbyist computer scene and the state, represented by the monopolist Bundespost, in the field of telecommunications. First of all, I will give an overview of how the BBS scene in the United States developed and how this practice was adopted in West Germany. In the second part, I will focus on the structural change in telecommunications in the 1970s and 1980s and the ensuing reaction of the West German federal government. I will conclude by tying both developments together.

2. The emergence of the BBS scene

In the 1960s, users discovered that computers were an ideal and powerful means of communication. Through the development of timesharing, a broader group of people gained direct access to computers. They soon developed the ability to communicate with each other on the same

system and to share data, programs and more or less private messages (Siegert 2008: 107).

From the mid-1970s, the microchip and the home computer brought simple and affordable devices into many US middle class households. The possible applications of these home computers had not been fully defined in the first years. What you could do with your own computer was an open question for the first owners of these devices. Connecting the computer to the telephone network was an obvious possibility, because many of the first computer users in the United States were “phone freaks” (Lapsley 2013) or ham radio enthusiasts, thrilled by communication.

The first electronic bulletin board on a home computer was connected to the telephone network in Chicago in early 1978. This BBS enabled callers to exchange and discuss messages with each other. Using a home computer in this way proved to be successful in the US. During the 1980s, the number of privately operated BBS increased. In the early 1990s, at the peak of the American BBS scene, between 90,000 and 150,000 private bulletin board systems existed in the United States (Sadofsky 2005: Ep. 1). In addition, there were a number of commercial online services such as *CompuServe*, which in 1979 made their business-oriented time-sharing service available for home computer users. (Campbell-Kelly / Garcia-Swartz 2008), or, more prominent in the Californian subculture, the bulletin board *The WELL* (Turner 2005).

Turning the home computer into a communication medium would not have been possible without the openness of the US telephone network. In the United States, unlike Germany, telecommunication systems were not a state-owned monopoly. The operator, AT&T, was a privately-owned company, whose monopoly was regulated by the Federal Communications Commission (FCC). Since the 1950s, the FCC had restricted AT&T’s monopoly constantly, as new technologies, such as microwave radio relays, created alternatives to the unwanted monopoly.

A milestone in the regulation of AT&T’s monopoly was the so-called Carterfone decision of 1968. This decision forced AT&T to abandon its mo-

nopoly on terminal equipment such as telephones and modems, and ordered the company to allow the connection of all kinds of devices as long as they did not interfere with their telephone network. This led to the development of new types of devices, which expanded the functions of the telephone network, for example fax (Coopersmith 2015: 105) and answering machines. In 1976, a young company called Hayes started to sell inexpensive modems, aimed especially at the booming market of home computers. To protect the business interests of smaller companies, the FCC also instructed AT&T to stay out of data processing (Wu 2012: 228).

In the early 1980s, when home computers became available in West Germany, their connection to the telephone network had already become a part of their established usage. However, the practice of home computer-based BBS was affected by the structure of the German telecommunications sector that differed from the United States. At the beginning of the decade, the telecommunication monopoly was very comprehensive, even though the criticism of the extensive activities of the state-owned Bundespost was growing (Monopolkommission 1981).

Among the critics of the strict German telecommunication monopoly were members of the young German hacker scene close to the Chaos Computer Club (CCC) in Hamburg, which was influenced by the left alternative milieu. In contrast to other critics, which were usually economically oriented, the CCC's objections were based on the practice of alternative media by left-wing groups. In addition to traditional approaches, the alternative media movement of the 1970s had already been experimenting with new technologies such as video. These were seen as an option to counter the manipulative power of television (Büttner 1979).

The German hacker scene applied the practice and the discourse of alternative media to the home computer and bulletin board systems. In doing so, the CCC's members developed a negative attitude towards the German telecommunication monopoly, which they regarded as a violation of the constitutionally guaranteed freedom of speech and freedom of the press (Chaos Computer Club 1984a). Therefore, the CCC indirectly en-

couraged the public to defy the German telecommunication laws by publishing a blueprint for a modem not approved by the postal service (Chaos Computer Club 1985).

With its focus on computers, the club differed from most of the German left-wing milieu in the early 1980s. Rather than seeing computers solely as a dangerous instrument of power with the ability to control and manipulate people, the CCC viewed them as some sort of neutral amplifiers. Their use did indeed entail the risk of making dominant institutions, such as the government, even more powerful. But by a creative and decentralised usage, computers also offered powerful opportunities for alternative structures (Schrotzki 1988: 168).

This twofold potential of computers required a precise analysis of their usage, including technical details. For example, the club rejected the German “Bildschirmtext” (teletext), introduced in 1984, because it was a central system that granted the Bundespost full control of content and communications, while forcing users to be passive consumers (Chaos Computer Club 1984b). In contrast, the CCC viewed privately-owned bulletin board systems as a democratic medium, because they were decentralised and free to use for everyone who wanted to publish information.

This perspective on computers led to a fundamental criticism of centralised systems for unnecessarily restricting the options of users and their devices. The telephone network of the 1980s, on which BBS were based, was a highly centralised system, which now came under pressure from technological change.

3. Structural change in communications

To understand the West German government’s telecommunication policy in the 1980s, two developments are paramount.

The first dates back to the 1960s and is based on the debate concerning the “technological gap” between the United States and Europe (Bähr 1995). Following a report published by the OECD (OECD 1968) and an influential book written by the French journalist Jean-Jacques Servan-Schrei-

ber (Servan-Schreiber 1970), European governments feared a non-recoverable lead of the United States in the field of high technology. In reality this gap only existed in the aerospace and computer sectors, but the debate in Europe was very effective and led the German government, among other activities, to set up funding programmes for data processing research (Pieper 2009). The main objective of these funding programmes was to create a German (and European) equivalent to the US world market leader, IBM (Gall 1999). Despite the German government's massive financial support, which mainly went to the "national champion" Siemens, the technological and economic advantage of the US IT industry grew further and further during the 1970s (Rösner 1978).

The economic crises of the 1970s exacerbated the perception of a German weakness on the IT market, as data processing was seen as an area with the potential to create high economic values with little use of energy or other resources. The crises also prompted the formulation of a new economic policy concept. Under the term "Aktive Strukturpolitik" (active structural policy), the German government discussed the idea of the state assuming a stronger role in managing structural change in the economy. The goal was to secure the competitiveness of the German economy on an international level (Hauff/Scharpf 1977; Hartwich 1977; Scholz/Thalacker 1980).

The second important development was the convergence of telecommunications and data processing since the early 1970s. The recently emerged computer manufacturers focused more on data communication, while the established telecommunications industry was increasingly dependent on digital technology. As a "newcomer" in telecommunication, the computer industry questioned established structures and the distribution of profits on the telecommunications markets. At the same time, the telecommunication equipment suppliers suffered increasing economic pressure because of high development costs and rapid innovation cycles. Their traditional domestic markets had become too small to support the costly and fast-paced changes.

Simultaneously, the network providers attempted to benefit from the growing revenues of data transmission by expanding their monopoly in this area. They feared that the market for analogue telephone line connections would soon be saturated (Werle 1990: 212). Their situation was further aggravated by the development of new communication technologies, such as satellites and radio relays. These weakened their key argument that only a monopoly structure could guarantee the most efficient outcome in telecommunications.

An example of the IT industry's commitment to telecommunications was IBM's entry into the development of communication satellites in 1974. Together with their SNA network protocol, which was presented almost at the same time, this advance could be seen as a planned attack by the IT sector's market leader on the telecommunication industry, especially on AT&T leased line services for business consumers.

A second example of the evolving conflict between the IT and the telecommunications industry was the debate about the standardisation of X.25, the telecommunication providers' first international data communication standard in 1976. Despite the IT industry and research community's demands to realise a more flexible network concept based on datagrams, the telecommunication providers designed X.25 as a virtual connection, which secured their control over data transfers in their networks (Russel 2014: 171f.).

Summarising the situation at the end of the 1970s, the West German government saw the economic power of the US IT industry as a growing threat. At the same time, telecommunications became increasingly important for the future of data processing. In this area, through its telecommunication monopoly, the state still had significant influence.

In France, where the situation was similar to Germany, the government officials Simon Nora and Alain Minc suggested in their report "The computerisation of society" that the French government should use its influence on telecommunications to strengthen the national economy and, in particular, to reduce the national dependency on IBM (Nora /

Minc 1979). The idea of using government influence to strengthen the national telecommunications industry also appealed to the German government, in particular because, at the end of the 1970s, telecommunications was still seen as one of the German economy's strong sectors with a high export rate (Graffe / Bilgmann 1980: 242; OECD 1983: 24). It seemed particularly promising to use the German Bundespost to modernise the economy. In 1980, the Bundespost was one of the largest investors in the Federal Republic, with an investment volume of 10 billion Deutsche Mark (Schmahl / Wohlers 1987: 375). To transform the Bundespost into a driving force of economic structural change, the well-established relationship between the Bundespost and its long-time hardware suppliers under the leadership of Siemens had to change.

During the 1970s, the Bundespost had expanded its monopoly to the field of data processing, which led to accusations that it was complicating and obstructing innovations in this area. A complaint case filed by companies before the "Bundesverfassungsgericht" (German Constitutional Court) against the monopoly on modems was dismissed in 1975. However, in this case, the legitimacy of the monopoly was not the issue in question. The Constitutional Court only clarified that the effect of the monopoly on modems, which was de facto a ban for others to enter the market, had a constitutional basis (Scherer 1985: 613).

In spite of this indirect legal confirmation, at the end of the 1970s, criticism concerning the monopoly structure of the German telecommunications industry grew (Monopolkommission 1981). The Ministry of Economics, led by Otto Graf Lambsdorff, a member of the liberal party FDP, questioned in particular the Bundespost's monopoly. Lambsdorff's idea was to reduce the economic activities of the state and to create new lucrative markets for innovative German electronics companies, for example Nixdorf. In 1979, he prevailed over Postal Minister Kurt Gscheidle: following an agreement between the two politicians, the Bundespost voluntarily limited its monopoly and committed to cap its market share for

telex machines to 20 percent, leaving the rest of the market to private companies (Werle 1990: 239).

The conflict behind this concession touched a core issue for the future of telecommunications: the development of semiconductor and computer technology facilitated new forms of organising telecommunication in the 1970s. Before the microchip was developed, it made sense economically to concentrate the expensive logic at a central location inside the communication network. But the chip made it possible to move more tasks and features from the network to the terminal equipment. This decentralisation created the opportunity to fundamentally change the balance of power in the telecommunications sector by enabling the creation of new services without the cooperation of the network operators. This posed a threat to network operators, as they were in danger of being excluded from the development of new and potentially lucrative telecommunication services and markets.

Telex is a good example of this process: for the Bundespost, the introduction of the telex service in 1979 implied that the revenues of the structurally loss-making “yellow” letter post might decline even further. As the telex machines were sold on the open market, the Bundespost also lost the lucrative monthly rental income it could have generated for renting out the equipment. Since the devices were connected to standard telephone landlines, it also lost the option of charging additional fees for specialised telex landlines. The Bundespost also could not benefit financially from further technological improvements, which would have made it possible to charge extra fees for future higher telex speeds. Instead, it only received the standard connection fees, while private companies marketed new paid information services via telex (Coopersmith 2015: 145f.).

Consequently, for a long time, the Bundespost opposed any further liberalisation of its terminal equipment monopoly. In the case of telex machines, the company insisted despite the compromise that all telex devices had to be checked and connected by its own technicians (Bohm / Wolf / Nitsch / Burda 1980). The permission to connect privately-owned

modems to the telephone network, as demanded by the German hacker scene and some economic stakeholder groups, was only granted by the Bundespost in 1986 following external pressure from the European Commission. Pushed through by the CDU-FDP coalition government against the resistance of many Bundespost executives, the fundamental reform of the German postal system (Postreform I) finally saw the demise of the terminal equipment monopoly in 1990 (Witte 1987).

The debate about the terminal equipment monopoly illustrates the dilemma the German government and the telecommunications industry faced in the 1980s. On the one hand general trade policy required the liberalisation of the telecommunications market. Failure to achieve this threatened to exclude German equipment manufacturers from other lucrative world markets, especially the United States. On the other hand stakeholders feared that a liberalisation of the German telecommunications market would primarily benefit foreign companies. This fear was not unsubstantiated: in the mid-1980s, Japanese companies had already achieved global market leadership for fax machines (Coopersmith 2015: 157), and most modems were produced by US companies.

In this situation, the international standardisation of data transmission according to the OSI model and the complete digitisation of the telephone network using ISDN seemed to provide a solution. It was hoped that ISDN and OSI as comprehensive standards for data telecommunication would revert the conditions of the telecommunications market in favour of the traditional telecommunications sector by reducing the development costs and the speed of innovation and at the same time increasing international sales opportunities (Cowhey and Aronson 1986). It was thought that, because of the pioneering role of Germany, especially in the development of ISDN, and the Bundespost's purchasing policy, the international competitiveness of the German manufacturers in particular would benefit from this process (Gottschalk 1991).

There is some evidence that the effectiveness of this strategy had been weakened during the standardisation process of ISDN and OSI. For ex-

ample, the ISDN project manager at the Bundespost, Theodor Irmler, reported in 1987 that the Americans were only focused on defining the basic data transport services, giving the terminal devices a greater influence, while the Europeans wanted to standardise further aspects of the telecommunication services (Irmler 1987: 68).

4. Conclusion: The bulletin board scene in the structural change of telecommunications

To conclude, I will return the West German BBS scene. Bulletin board systems were the result of two overlapping developments: the first is the convergence of telecommunications and computing and the computing industry's attempt to compete for influence and, ultimately, revenue in the telecommunications market; secondly, the BBS stood for a change in the computer industry itself that created the personal computer and brought it into private homes. The basis of both developments was the introduction of the microchip which steadily reduced the costs of digital technology.

Due to the deregulated telecommunications sector, the use of home computers as private communication devices was fairly straightforward in the United States, but in West Germany the conditions were different. Here, the IT industry was relatively weak in comparison to the telecommunications sector, characterised by the state's monopoly.

In this situation, the German government used its influence on telecommunications strategically in favour of the German economy to compensate for the strength of the US computer sector. However, the use of home computers as a means of communication was in conflict with the aims of this government policy.

Unlike companies, which were obliged to adhere to the law, the sub-cultural hacker and BBS scene felt free to deal with the realities of German telecommunications. The scene practiced a "forward-looking approach to laws", as Wau Holland, an important figure of the scene, once phrased it, which meant simply ignoring the legal constraints of the telecommunication monopoly.

The hacker and BBS scene had other priorities than the German government. Its members focused on the technical possibilities and - from their point of view—the socially desirable values rather than the letter of the law. They simply adopted US telecommunication practices. For the members of the BBS scene, connecting home computers to the telephone network provided an opportunity to communicate independently. From this perspective, telecommunications was not a question of market share, but of freedom and power. The members of the scene wanted to make the unowned spaces created by technical progress accessible for everyone. They wanted them to be neither restricted nor left purely for economic exploitation. The practices of the BBS scene made this aspect of telecommunications finally visible, although there is little evidence to prove this had a direct impact on the political process. The transformation of telecommunications had already gained technological and economic momentum, making it difficult to control the result.

Bulletin board systems also epitomise a development in telecommunications which saw terminal equipment gaining importance, while the physical network receded. This development was strengthened in particular by the establishment of Internet Protocol (IP) as the standard for data transmission in the 1990s. As a pure end-to-end protocol, IP manages communication almost entirely at the terminal. The underlying network's role is reduced to delivering data packets (Bunz 2008: 83). The global success of the Internet Protocol therefore changed the conditions of the telecommunications market radically in favour of the US-dominated IT industry. For the time being, this put an end to all hopes that Germany or Europe would be able to compete in the telecommunications and IT sector.

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