

## And Postal Services?

# The Universal Postal Union and the Digitisation of Communication in the 1980s

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### 1. Introduction

“The Post should not become the monopolist for slow mail.”<sup>1</sup> In his opening speech to the 8<sup>th</sup> Electronic Mail Conference in Munich in September 1986, the German Minister for Postal Services and Telecommunications, Christian Schwarz-Schilling, used these words of warning to highlight the Post’s decreasing importance in light of the possibilities offered by electronic mail services via digitised telecommunication networks. The conference was organised under the umbrella of the “Paris Group” which, since 1978, brought together postal administrations from the most technically advanced countries. The aim of their cooperation was to analyse how the digitisation of telecommunication and the introduction of new services impacted on letter post. The group addressed these challenges, which the Universal Postal Union (UPU) had largely ignored, despite being the major international organisation responsible for postal services. The 8<sup>th</sup> Electronic Mail Conference took place at a critical juncture in the evolution of electronic mail services, exerting pressure on the postal administrations to act more decisively and adopt methods of digitised communication to meet a growing societal demand. It was time for the postal administrations to keep pace and “venture into advanced services in order to maintain their share in the markets”<sup>2</sup>.

In this paper, I will focus on how the postal administrations and their international organisations reacted to the digitisation of communication and in particular to electronic mail services, raising a number of ques-

tions: why, when and how did the postal administrations and their international organisations, the UPU in particular, respond to the digitisation of communication and the emergence of electronic mail services? Why did digital technology suddenly become a matter of urgency in 1986, after being neglected in the years before, especially by the UPU? What were the objectives the postal administrations could and had to pursue? And last but not least: what can the evolution of electronic mail services teach us about the broader context of the history of digitisation? By answering these questions, I will shift emphasis away from the computer and telecommunications sector to the monopolists for physical mail (letter mail).

Usually, postal and telecommunication administrations were combined within one common PTT (postal, telegraph, telephone) administration in the 1970s and 1980s. However, within these PTT administrations their business activities were strictly separated. In terms of their organisation, postal and telecommunication services were independent from one another; the specialist expertise required for the two services was also completely different. To understand postal administrations and their stakeholders, it is necessary to grasp their logic of thinking concerning communication services. As monopolists, the postal administrations were required by law to offer high-quality, low-cost physical mail services nationwide for the economy and society. According to national postal legislation, the administrations had to provide an effective and low-priced nationwide physical mail service. The postal administrations were neither obliged to explore telecommunication technology nor allowed to invest in equipment with uncertain prospects of success. They had little access to risk capital for investments in technology.

In recent years, the number of studies on the digitisation of telecommunications (Henrich-Franke 2014), the history of computing (Haigh 2016; Ceruzzi 2003), the history of networks (Gießmann 2014) and the consequences of digitisation for society (Erdogan / Funke / Kasper / Schmitt 2016; Danyel 2012) has increased. These studies usually focus on the dynamic aspects of technological development, ignoring postal administra-

tions or physical mail. However, a systematic analysis of the postal sector is necessary to establish a more diversified view of how digitisation affected the communications sector in general. It is certainly the case that the digitisation of telecommunications had a greater fundamental impact on the postal services (letter post) than any other previous innovation in the field of telecommunications.

To answer the questions above, I will first analyse the postal sector and the UPU's role before the digitisation of telecommunications beginning in the 1970s. In the next section, I will trace the stages of technological development and the reactions of the postal administrations and the UPU in the years 1978 to 1984 and 1985 to 1989, before drawing a conclusion.

## **2. The Post and the Universal Postal Union in analogue times**

In 1874, the national postal administrations founded the Universal Postal Union to cooperate on all aspects of cross-border postal services (Lyall 2011; Neutsch 2009; Mazou 2004). They met at regular World Postal Congresses to negotiate rules for, amongst others, tariffs, operational requirements for rail or air mail, or the automation of letter sorting systems. The member administrations even set up a "Consultative Committee for Postal Services" (CCPS) in order to jointly explore specific questions and to report the results back to the World Postal Congresses. It is important to underline that the CCPS was not composed of telecommunication engineers. These met within the "Consultative Committee for Telegraph and Telephone" (CCITT), which was part of the International Telecommunication Union (ITU). Within the CCITT, engineers from the telecommunication administrations and the equipment industry negotiated technical standards, amongst others for digital networks and electronic mail services (Henrich-Franke 2014; Laborie 2010). Consequently, the technical aspects of postal and telecommunication services followed completely separate developments paths on a national and international level.

The long-term development of the markets for postal and telecommunication services is key to understanding the postal administrations' reaction to digitisation. Since the 19<sup>th</sup> century, the physical and electronic transmission of information was clearly separated. Physical mail, and letter mail in particular, remained a lucrative business until the mid-20<sup>th</sup> century. The different innovations in telecommunications such as the telegraph, the telephone or the telex all entered particular market segments, never challenging the need for letter mail. The transportation of parcel and letter mail by rail and air became faster and cheaper (Benz 2013), putting the postal administrations into a position where, for a long time, they were not threatened by any competition. Nevertheless, the expensive infrastructure, and staff costs in particular, prompted a demand for cost savings since the 1960s. Like many other postal administrations in the 1970s, the Bundespost consequently invested in automatic letter sorting systems to increase efficiency and to lower costs. The Post incorporated digital technology into the letter mail infrastructure, but only at particular hubs, where letter mail was sorted according to postcodes. Up to the 1990s, these sorting systems were introduced nationwide across Western Europe.

### **3. The Post and the origins of digital network communication**

The year 1977 was a milestone in the development of digital network communication. Technical developments such as the evolution of computer networks like the ARPANET (Haigh 2016) or the digitisation of telephone switches had begun some time earlier. In 1977, however, the CCITT began to issue recommendations for the transmission of typewritten texts. Hence, the topic of digital networks appeared on the agenda of a large international standard-setting body for the first time.

The postal administrations realised that the digitisation of telecommunications and the increased use of data networks would sooner or later raise questions about how to deal with electronic mail and how to

react to the new modes of information transmission. After carefully analysing the market situation, the Bundespost concluded in 1977 that “in the Federal Republic no concrete demand for electronic mail is perceptible” (Elias 1977: 56). This assessment was based on economic assumptions which can be grouped into three categories:

- 1) Electronic mail systems would offer customers little added value, because letter mail was delivered very effectively in Germany within only 24 hours.
- 2) Due to the high cost of technical equipment, the majority of electronic mails had to be delivered by hybrid systems. These were a combination of physical and electronic mail services. Electronic mails were sent to the post office where they were printed out, enveloped and delivered manually. The cost of manual delivery would outweigh other economic advantages.
- 3) Electronic mail systems would require the postal administrations to make high investments not covered by savings in the letter mail systems.

Overall, the German postal administration assessed electronic mail services delivered via digitised telecommunication networks from a purely economic point of view—especially with regard to restrictions in national law.

In unison, the postal administration avoided any urgent reaction as it did not expect an economic threat in the medium term. Nevertheless, it intended to monitor the technological developments. As late as September 1983, the British Post Office stated in a policy paper for the European postal administrations that “the electronic messaging capability of word processing systems is not currently perceived as being of major importance. In the medium term the lack of commitment by equipment suppliers will militate against the widespread use of word processes in the electronic messaging field”<sup>3</sup>. Despite this widespread view, a few postal

administrations set up national pilot projects for electronic mail services such as the Swedish “Postfax-System” or the German “Telebrief”. They all were hybrid systems involving the manual delivery of electronic mails. The administrations only focused on special applications for office communication. Mass markets for public users were not taken into consideration. These pilot projects in the early 1980s confirmed the administrations’ reservations as they proved economically less attractive. They were unable to overcome an important obstacle: the traditional letter mail systems. In 1982, the German “Telebrief” delivered a total of 29,976 mails (or 70,426 pages) within Germany. In comparison, the traditional mail service delivered 36 million letters a day.<sup>4</sup>

Initially, the members of the Universal Postal Union overwhelmingly rejected an in-depth study of electronic mail services because of their actual economic importance. Within the UPU, members preferred to discuss intra-system improvements such as the automation of letter sorting systems rather than comparing the benefits and disadvantages of electronic mail systems and telecommunication facilities. The World Postal Congress in 1979 finally enabled the CCPS to set up a first working group on the topic of “Electronic mail and other advanced message systems”. After nearly five years, the group delivered its final report on electronic mail systems at the World Postal Congress in Hamburg in 1984.<sup>5</sup> There, the UPU decided to intensify its cooperation with the ITU on the issue. The CCITT had called for a closer cooperation between the two bodies for many years, but in July 1979 the UPU had still voiced reservations about some issues as well as procedures of cooperation. As a first step, the UPU’s International Office wanted to establish an institutional basis for cooperation. This took more than two years, with a first preliminary meeting between the UPU and the ITU taking place in autumn 1981. The first ordinary working meeting convened in September 1984, after the CCITT’s Common Assembly had agreed on a formal statute of cooperation between both organisations. In preparation, the CCPS had formally defined guidelines and areas of responsibility in autumn 1983, which were ac-

cepted by the ITU's Administrative Council in April 1984. In lengthy institutional coordination processes the organisations clarified what role and rights the UPU was to have within the CCITT and who would have to bear the costs.<sup>6</sup> Overall, the UPU showed an inert institutional reaction.

Nevertheless, a first UPU delegation participated on an informal basis in a meeting of the CCITT's working group I/7, which had responsibility for "bureau fax and telewriting", in spring 1982. Some postal administrations were prompted to take part by their pilot projects, for instance the "Telebrief". A first result of the cooperation was the revised CCITT recommendation F170, which set the transmission formats for the international fax service (paper and envelope sizes, rules for addressing etc.). Telecommunication engineers, of course, considered these issues as non-technical questions. Before 1984, little cooperation between the UPU and the ITU took place. Neither did the UPU conduct any in-depth technical research on the impact of digitisation on mail services. Remarkably, the organisers of the "World Postal Day" on 9<sup>th</sup> October 1984 coined the symptomatic slogan: "Nichts kann die Post ersetzen" (Nothing can replace the Post).<sup>7</sup>

Prompted by the UPU's sluggish attitude, some of the more technically advanced postal administrations initiated a cooperation within the Paris Group in 1979. Its members met annually at "Electronic Mail Conferences" to discuss developments. A technical committee and a marketing/operations committee were set up to publish reports annually that included recommendations for further action. In contrast to the UPU, both committees carefully monitored the development of electronic mail systems. The committees analysed national pilot projects, and the postal administrations exchanged information of mutual interest.<sup>8</sup> A major problem discussed by both committees was the privacy of correspondence in hybrid mail systems. Enveloping in the post offices required protection of data privacy, indelibility and high quality transmission. All these aspects were crucial if public administrations, private enterprises and financial service providers were to become customers of hybrid mail systems. The



Source: Bundesarchiv Berlin, DM3/18218



committees also researched and analysed software packages like Comsat. Nevertheless, the key problem of all electronic mail services remained an economic one: low bandwidth and digit rates combined with high costs for lines made electronic mail services too expensive for a limited number of customers. In 1982, using the Comsat software, postal administrations were able to transmit a maximum of 25 pages per hour.<sup>9</sup>

The activities of the Paris Group's member administrations played a crucial role. While internal discussions were of a theoretical nature, at least the group studied electronic mail services at a time when the UPU chose to ignore them. It was the Paris Group that initiated the revision of the CCITT recommendation F170 and drafted the first "Guidelines for the selection of facsimile equipment for direct communication via public telephone networks"<sup>10</sup>. The group raised awareness for the consequences of digitisation and was the driving force for several agreements on international services, including a common vocabulary, a common basis of calculation and the corporate identity of the Intelpost system, which facilitated international cooperation.

So in the years 1983/84, only a limited number of postal administrations engaged with electronic mail systems and carried out pilot projects. These systems were neither profitable nor did they fulfil the postal administrations' service requirement of unlimited access, high transmission quality, data security or integration into existing mail systems. Taking into account that the monopoly for postal services had never been seriously challenged before, the postal administrations had little motivation to take decisive action.

#### **4. The Post and the ISDN standard**

The years from 1984 to 1986 can be considered as a critical juncture, because the postal administrations—at least in technologically advanced countries such as the US, the UK, Sweden or Germany—realised that electronic mail could become a serious competitor for physical mail services. Technologies had developed rapidly, while the majority of postal

administrations and the UPU had been slow to react. Between 1980 and 1984, a multitude of technical advances in areas such as corporate closed data networks, data transmission via fax or personal computers such as the Commodore 64 occurred. One major achievement was the standardisation of the “Integrated Services Digital Network” (ISDN) which promised digital data transmission between terminal equipment in companies and private homes using the existing public telephone network (Rutkowski 1986). For the first time, a structural change in the markets for mail transmission was imminent. The postal administrations’ monopoly on physical mail services now was in danger of being eroded by electronic transmission. This shift took place independently from the political debate about a liberalisation of the postal markets in the 1980s. In the medium and long term, all economic calculations based on the operation of hybrid systems risked becoming obsolete. To that effect, the British Post Office stated as early as September 1983 that “the continued expansion of conventional letter mail services is under threat from the competing technologies. The timing and rate of the conventional mail erosion process is difficult to assess, but it is now clear that some of the competing technologies have left the development stage and are gaining ground in the electronic messaging market place”<sup>11</sup>.

The postal administrations, the UPU and the Paris Group had to adapt their strategies to the accelerating technical developments, in particular to ISDN. Between 1984 and 1986, it became increasingly obvious that the standardisation of transmission technologies within the CCITT would continuously pose new challenges for the traditional physical mail service. The Paris Group’s members warned therefore that “further development of electronic mail services would require ever more telecommunication expertise”<sup>12</sup>. In 1985, the international cooperation of postal administrations increased remarkably within a few months. On the one hand, the CCITT-CCPS Contact Committee started working as a permanent institution. This meant the UPU assumed a pivotal role on the postal side, forcing the Paris Group to connect with the UPU, because it was not

allowed to participate in the CCITT. On the other hand, the rapidly developing technology kicked an increasing number of postal administrations into action, prompting them to participate in the international cooperation on electronic mail services.

The first substantial meetings between stakeholders from the postal and the telecommunications sides in spring 1986 revealed two important points. (1) Postal administrations would only be able to influence the technical development of electronic mail services, if they spoke with one voice. The telecommunication engineers within the CCITT's study groups had a completely different mindset. They believed the further development of electronic data networks or electronic mail systems should follow an engineering logic. The preservation of the monopoly for letter mail, the cost effectiveness of letter mail infrastructures or the development of hybrid systems was of no interest to them. (2) Postal administrations had missed the right time to enter the standardisation process for digital transmissions and electronic mail services. According to the CCITT's working procedures, the next standards were due to be agreed in spring 1987. The postal side had little to contribute to the next set of standards that were issued for electronic mail services and digital transmissions, despite the CCPS hurriedly appointing a new study group, which was advised to take the Paris Group's work as a starting point. The postal administrations were in a position to give input for CCITT standards, but only in some marginal aspects such as the design of fax formulas. Consequently, the basic standards for digital transmission networks which had a fundamental impact on the postal services in the medium and long term were agreed without any noticeable participation from the postal administrations, the UPU or the Paris Group. The Post was a passive onlooker of technical changes and ultimately transformed itself into "the monopolist for slow mail". Even the ISDN standard was agreed without the Post's input.

The standardisation of ISDN and the general digitisation of communication impacted postal administrations and the UPU in two respects.

First, postal administrations focused their attention on hybrid systems and conventional letter mail. They expected electronic mail systems would take 15 to 20 years to capture the private home market. In the meantime, they hoped physical mail systems with their wide infrastructures networks would satisfy the demands for both business and private communication.<sup>13</sup> At the World Postal Congress in 1989, they even agreed to set up the “Express Mail Service” (EMS), which would deliver international letter mail within the shortest possible time.<sup>14</sup> Secondly, many postal administrations voiced a scathing criticism of the UPU for its long working cycles and demanded more effective procedures, in particular in terms of updates on the development of express mail services and competition with private companies in the field of communication.

## 5. Conclusion

For a number of partially connected reasons, the reaction of the UPU and its members to digitisation and electronic mail systems in the late 1970s and early 1980s was restrained. The crucial factor was a combination of a lack of financial incentives and the historically evolved expectation that innovations within telecommunications (such as the telegraph, telephone or telex) would never fundamentally challenge the physical postal services. More importantly, the decision-makers within the postal administrations were neither telecommunication engineers who could evaluate the potential of new technologies nor did they participate in the standardisation of telecommunication equipment. Some postal administrations, however, wanted to monitor on the development of electronic mail systems and set up the Paris Group.

The decision-makers within the postal administrations evaluated the consequences of digitisation on mail services from a strikingly different perspective compared to the telecommunication engineers. The postal administrations based their thinking on a holistic hybrid mail system that integrated physical and electronic components to address the entire service area of an administration. In contrast, the telecommunica-

tion engineers envisaged purely digital transmission networks either within companies and administrations or using the existing telephone network. These differences in thinking, approaching and scaling mail systems were an important reason why the postal administrations refrained from researching new technical possibilities.

Rapid technological progress in the early 1980s caused a change in the postal administrations' attitude towards digitisation and electronic mail systems. The standardisation of ISDN promised a structural change towards a nationwide digitisation of transmission networks and a comprehensive distribution of terminal equipment for electronic mail services even in private homes. The CCITT's recommendations for ISDN in 1984 were a significant turning point in how the digitisation of communication was perceived. In addition, the first half of the 1980s saw enormous technological progress in the fields of computerisation and data handling.

Any judgement of the actions taken by the postal administrations and the UPU has to take into consideration the legal framework constraining postal services, in particular in many European countries. Against this backdrop, the postal administrations' reactions towards the digitisation of communication can be explained with the logic of financing and supplying postal services at the time. The postal administrations and the UPU observed their rules and approached the issue with more focus only when the technological groundwork such as ISDN and home computers promised mass markets for electronic mail services after 1984/85.

The digitisation of communication is not only a process of permanent technological progress, but also of alignment, examination and competition by and between different forms of communication such as physical mail. The physical postal services are an interesting example for a traditional form of communication which has had to find its way into the digital era. In the 1980s, on the one hand digital data processing became part of the letter mail infrastructures in the form of automatic letter sorting systems and on the other hand electronic mail services evolved as a potential future competitor. The Express Mail Service established in 1989 is

an answer to the digital challenge. Today it still is a key service offered by postal administrations. Overall, this paper shows that the postal services and postal administrations deserve much more attention by (historical) research.

## Notes

- 1 Opening speech by the German Minister for Postal Services and Telecommunications, Schwarz-Schilling, at the 8th Electronic Mail Conference, 24th September 1986, Bundesarchiv Koblenz, B257/53521.
- 2 Opening speech by the German Minister for Postal Services and Telecommunications, Schwarz-Schilling, at the 8th Electronic Mail Conference, 24th September 1986, Bundesarchiv Koblenz, B257/53521.
- 3 Report on "Technical developments in electronic mail systems" by the British Post Office, September 1983, Bundesarchiv Koblenz, B257/53520.
- 4 Report on "Electronic mail programs and plans" by the Bundespost, August 1983, Bundesarchiv Koblenz, B257/53520.
- 5 Report on the World Postal Congress by the Deutsche Post, Bundesarchiv Berlin, DM3/13983.
- 6 Report of the first meeting of the CCITT-CCPS Contact-Committee, May 1986, Archives of the International Telecommunication Union, Geneva, Doc. COM I-76-E.
- 7 Poster of the World Post Day 1984, Bundesarchiv Berlin, DM3/18218.
- 8 Report on the Activities of the Technical Committee of the Paris Group, September 1986, Bundesarchiv Koblenz, B257/53523.
- 9 Report of the Technical Committee of the Paris Group to the Plenary Assembly, October 1983, Bundesarchiv Koblenz, B257/53520.
- 10 Report of the Paris Group Management Committee on International Co-operation, September 1986, Bundesarchiv Koblenz, B257/53525.
- 11 Report on "Technical developments in electronic mail systems" by the British Post Office, September 1983, Bundesarchiv Koblenz, B257/53520.
- 12 Internal report of the Bundespost on the Meeting of the Paris Group Management Committee, September 1986, Bundesarchiv Koblenz, B257/53525.
- 13 Report of the Bundespost on "Electronic Mail for Mass Communication", September 1986, Bundesarchiv Koblenz, B257/53525.
- 14 Report of the Deutsche Post on the World Postal Congress 1989, Bundesarchiv Berlin, DM3/26249.

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