

Introduction

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“We are saying goodbye to medium data technology and discarding terminological and historical ballast.” (Computerwoche, 10.2.1978)¹

The European and, above all, German manufacturers of decentralized office computers decided to abandon the term “medium data technology” for their devices in 1977. Instead, they focused on the term “decentralized data processing”, mainly to get rid of a label that had lost its function in the technological transformation of the 1970s. This term had lost its explanatory function in the now differentiated electronic data processing markets. The dull term “medium data technology” was banished to the history books because it was associated with a historical stage of technical development that was perceived as nothing more than ballast and was no longer honoured by customers.

The term and the associated devices originated in the development departments of European office machine manufacturers in the 1960s, when they began to integrate new technologies, such as transistors and magnetic memories, into their mechanical and, in some cases, already electronic, accounting machines. The result was a new class of device that still followed the tradition of mechanical office machines but also had functions similar to electronic computers. In other words, it was somewhere in between, in the “middle”, so to speak, and was aimed at medium-sized companies. We use the direct translation of the German term “*Mittlere Datentechnik*” (medium data technology) in this volume to emphasize that we are dealing here with a specific class of devices and a particular development context from office and booking machines. This is to be distinguished from the term “mid-range computing”, which originates from the context of US computer production.

1 “Wir nehmen Abschied von der Mittleren Datentechnik und werfen begrifflichen und historischen Ballast ab.” Abschied von der Mittleren Datentechnik, in: Computerwoche from 10 February 1978. All original German quotations were translated into English by the authors.

European manufacturers of such devices were keen to establish themselves as a central component of the data processing industry from the mid-1970s in view of the growing importance of computers in the workplace and the seemingly unstoppable expansion of markets. However, very few realized at the time that manufacturers were already fighting a battle of retreat, both on national and international markets. With the advent of the personal computer (PC) in the 1980s, at the latest, it was clear that European manufacturers, with their desk-sized office computers, no longer had a future. The term “medium data technology” finally disappeared from active use and was relegated to the dustbin of computer history.

Historical research has so far only addressed the phenomenon of “medium data technology” to a limited extent. This is all the more remarkable given that the increasing spread and use of computers in offices has been a key development in industrialized countries since the second half of the 20th century. The various subdisciplines of historical studies have also hardly dealt with the development and significance of “medium data technology” for the progress of the techniques, practices and distribution of office computers in this product line.

This volume focuses, therefore, on the very piece of the “history of computing” puzzle that has, so far, only been a footnote in the “grand narrative” of computer history: medium data technology.

The history of medium data technology addresses some central gaps in the previous narratives of computer history. Firstly, it is a genuinely European phenomenon. While extensive research and overviews are available on US computer history,² its European counterpart has only been researched to a limited extent.³ Little is known about European manufacturers, their devices and their customers,⁴ especially when, as in this case, their development was largely independent of the USA. We know even less about their significance for utilization practices.

The second gap is its origin in the (European) office machine industry, which can be traced back to the 19th century.⁵ The history of “medium

2 Haigh/Ceruzzi: A New History; Campbell-Kelly: From Airline Reservations; Campbell-Kelly/Aspray: Computer.

3 Schmitt et al.: Digitalgeschichte Deutschlands; Leimbach: Die Geschichte der Softwarebranche; Petzold: Moderne Rechenkünstler; Zellmer: Die Entstehung.

4 Jessen et al.: AEG-Telefunken TR 440; Hilger: European Enterprise; Hilger: Von der “Amerikanisierung”.

5 Vahrenkamp: Informationsexplosion; Ramm-Ernst: Stahlgehirne; Dingwerth: Schreibmaschinen-Fabriken, Band 1.

data technology”, its manufacturers and the practices of its use are, thus, part of a longer process of the technicalization of information processing, which did not just begin with the first electronic computers in the 1940s. In fact, medium data technology marks a “missing link” from older practices shaped by mechanical office machines to digital-electronic ones that are still effective today. Although the “history of information” has broadened its focus beyond a mere history of electronic computers and for some years been dealing with the (US-American) practices and technologies of information processing before the computer age,⁶ studies linking the two have, to date, been rare. After all, the PC did not develop out of nowhere into a central tool of corporate management, and the computerization of offices did not only begin with its advent in the 1980s.

A third gap lies in the disappearance of medium data technology and its producers. Its closure promises new insights into the transformation of the data processing sector from the end of the 1980s onwards. The emergence of the PC not only had an impact on the (former) medium data technology sector, but, instead, its disappearance can be understood as an (early) part of a fundamental crisis in the global data processing industry, which also threw giants such as IBM and DEC off-course at the beginning of the 1990s.⁷ At this point, the almost 30-year growth cycle of the data processing industry appeared to be over, before the industry reinvented itself in the mid-1990s, driven by the new significance of computer networks.

Finally, the focus on medium data technology adds to the “history of computing” a development strand that can be seen as failed or finished, or which, apart from a brief boom phase, cannot be integrated into one of the usual success stories of technologies. As history is usually told *ex post* (by the “winners”), developments that were relevant at the time but overshadowed by later phenomena are often forgotten. One such phenomenon is medium data technology. It shaped the notion of office computers in the late 1960s and 1970s, before this term was reinterpreted from the 1980s onwards due to the success of the PC. The few studies that have dealt

6 Yates: Structuring; Agar: The Government Machine; Yates: Business Use; Cortada: Before the Computer; Yates: Control; Beniger: The Control Revolution.

7 Cortada: IBM; Schein: DEC; Carroll: Big Blues.

directly with medium data technology to date have done so primarily from a business history perspective⁸ or are reports by contemporary witnesses.⁹

This volume brings together various perspectives on the phenomenon of medium data technology. On the one hand, these are classic questions of economic history, in which companies are at the centre; in addition, the supporting technologies and their transformation are also included in the analysis from the perspective of a more broadly understood history of infrastructure and technology. In addition, from the perspective of a classical political history, the reactions and dealings of political actors at various levels, from Europe to the nation-state, with medium data technology will also be analysed.

The various contributions look at different aspects of the development of medium data technology in two sections. The first section takes an overarching perspective and deals with the rise and fall of this European class of equipment and its producers. Matthias Röhr starts in an overview chapter by analysing the West German office machine industry and its transformation to electronic data processing in the 1960s, the brief boom phase and the slow decline of the industry until the 1980s. He argues that, with the advent of medium data technology, office machines became computers, even before “the computer” itself, in the form of the PC, became a universal office machine in the 1980s. Christian Franke addresses the IT policy of the European Community in his contribution, which responded to the difficult competitive situation of European computer manufacturers by, among other things, designing the European research funding programme Esprit.

The various contributions in the second section highlight individual companies and developments. Christian Berg and Armin Müller take a look in their contributions at two central West German producers of medium data technology: Nixdorf and Kienzle, from a business history perspective. Matthias Röhr sheds light on the brief excursion into the world of medium data technology by the long-established musical instrument manufacturer Hohner, and Christian Franke uses the example of the former Siemag and Philips plant in Siegen-Eiserfeld to look at the impact medium data technology had on their locations. In the final article, Michael Homberg zooms in on another competitive aspect of medium data technology: A lot

8 Henrich-Franke: Innovationsmotor Medientechnik; Berg; Nixdorf; Müller; Kienzle.

9 Hanewinkel: Computerrevolution; Heinrich: Geschichte der Wirtschaftsinformatik; Müller: Glanz.

of companies were faced with the question of whether they would be better off using the services of an external data centre instead of buying a medium data technology computer.

Bibliography

- Agar, Jon: *The Government Machine. A Revolutionary History of the Computer*, Cambridge, MA 2003.
- Beniger, James Ralph: *The Control Revolution. Technological and Economic Origins of the Information Society*, Cambridge, MA 1986.
- Berg, Christian: *Heinz Nixdorf. Eine Biographie*, Paderborn 2016.
- Campbell-Kelly, Martin: *From Airline Reservations to Sonic the Hedgehog. A History of the Software Industry*, Cambridge, MA 2003.
- Campbell-Kelly, Martin / Aspray, William: *Computer. A History of the Information Machine*, New York 1996.
- Carroll, Paul B.: *Big Blues. The Unmaking of IBM*, New York 1994.
- Cortada, James W.: *Before the Computer. IBM, NCR, Burroughs, and Remington Rand and the Industry They Created, 1865–1956*, Princeton 1993.
- Cortada, James W.: *IBM. The Rise and Fall and Reinvention of a Global Icon*, Cambridge, MA 2019.
- Dingwerth, Leonhard: *Die Geschichte der deutschen Schreibmaschinen-Fabriken, Band 1. Große und mittlere Hersteller*, Delbrück 2008.
- Haigh, Thomas / Ceruzzi, Paul E.: *A New History of Modern Computing*, Cambridge, MA, London, UK 2021.
- Hanewinkel, Lorenz (Ed.): *Computerrevolution. Mein Weg mit Konrad Zuse und Heinz Nixdorf*, Paderborn 2010.
- Heinrich, Lutz J.: *Geschichte der Wirtschaftsinformatik*, Berlin, Heidelberg 2011.
- Henrich-Franke, Christian: “Innovationsmotor Medientechnik. Von der Schreibmaschine zur ‘Mittleren Datentechnik’ bei der Siemag Feinmechanische Werke (1950 bis 1969)”, in: *Zeitschrift für Unternehmensgeschichte* 66/1 (2021), p. 93–117.
- Hilger, Susanne: “Von der ‘Amerikanisierung’ zur ‘Gegenamerikanisierung’. Technologietransfer und Wettbewerbspolitik in der deutschen Computerindustrie nach dem Zweiten Weltkrieg”, in: *Technikgeschichte* 71/4 (2004), p. 327–344.
- Hilger, Susanne: “The European Enterprise as a ‘Fortress’ Competition in the Early 1970s. The Rise and Fall of Unidata between Common European Market and International Competition in the Early 1970s”, in: Schröter, Harm G. (Ed.), *The European Enterprise*, Berlin, Heidelberg 2008, p. 141–154.
- Jessen, Eike / Michel, Dieter / Siegert, Hans-Juergen / Voigt, Heinz: “The AEG-Telefunken TR 440 Computer. Company and Large-scale Computer Strategy”, in: *IEEE Annals of the History of Computing* 32/3 (2010), p. 20–29.

- Leimbach, Timo: *Die Geschichte der Softwarebranche in Deutschland. Entwicklung und Anwendung von Informations- und Kommunikationstechnologie zwischen den 1950ern und heute*, München 2010.
- Müller, Armin: Kienzle. *Ein deutsches Industrieunternehmen im 20. Jahrhundert*, Stuttgart 2014.
- Müller, Ilse: *Glanz und Elend der deutschen Computerindustrie. Meine Erfahrungen als High-Tech-Unternehmerin*, Frankfurt am Main, New York 1995.
- Petzold, Hartmut: *Moderne Rechenkünstler. Die Industrialisierung der Rechentechnik in Deutschland*, München 1992.
- Ramm-Ernst, Jasmin: *Stahlgehirne. Mechanische Rechenmaschinen als eine neue Form von Technik (ca. 1850–1930) am Beispiel des Fabrikats Brunsviga*, Stuttgart 2015.
- Schein, Edgar H.: *DEC is Dead, Long Live DEC. The Lasting Legacy of Digital Equipment Corporation*, San Francisco 2004.
- Schmitt, Martin / Erdogan, Julia / Kasper, Thomas / Funke, Janine: “Digitalgeschichte Deutschlands – ein Forschungsbericht”, in: *Technikgeschichte* 82/1 (2016), p. 33–70.
- Vahrenkamp, Richard: “Die erste Informationsexplosion. Die Rolle der Lochkartentechnik bei der Büro-rationalisierung in Deutschland 1910 bis 1939”, in: *Technikgeschichte* 84/3 (2017), p. 209–242.
- Yates, JoAnne: *Control through Communication. The Rise of System in American Management*, Baltimore, MD. 1993.
- Yates, JoAnne: “Business Use of Information and Technology during the Industrial Age”, in: Alfred D. Chandler / James W. Cortada (Eds), *A Nation Transformed by Information. How Information Has Shaped the United States from Colonial Times to the Present*, Oxford England, New York 2000, p. 107–135.
- Yates, JoAnne: *Structuring the Information Age. Life Insurance and Technology in the Twentieth Century*, Baltimore 2008.
- Zellmer, Rolf: *Die Entstehung der deutschen Computerindustrie. Von den Pionierleistungen Konrad Zuses und Gerhard Dirks’ bis zu den ersten Serienprodukten der 50er und 60er Jahre*, Köln 1990.