DATA CENTERS
EDGES OF A WIRED NATION

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Lars Müller Publishers

Ostermundigen

Ruins of Post-Industry: The Rise and Fall of ERZ/W

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I Remains

The state enterprise is, so to speak, an institution made for eternity.
Arnold Reber, head of PTT's Punch Card Division, 1960

My first attempt at visiting ERZ/W—Switzerland's erstwhile largest "computing center," operated by the Swiss National Post-, Telefon- und Telegrafenbetriebe (PTT)—failed. I had, it transpired, gotten in touch with the wrong real-estate or, for that matter, facility management company: a company in charge not of the defunct Elektronisches Rechenzentrum (ERZ), which I consequently was unable to inspect; but one in charge of the eighteen-or-so-story R&D building next door, the former PTT Research and Development Center—an imposing (by Swiss standards), vaguely modernist looking high-rise towering over the eastern outskirts of the nation's capital city, Bern.

This much I already knew: the high-rise had indeed been built by a man with impeccable credentials—Hans Brechbühler, a disciple of Le Corbusier's. And much like ERZ/W, the adjacent Labor-Hochhaus (R&D skyscraper), completed in 1972, had gone through several hands since. Or so I was told by the person who did show up that day, a local contractor working for said facility management company: Swisscom, PTT's quasi-private successor company as of January 1, 1998, had first sold, then leased back, the buildings so as to produce the considerable amounts of cash it presumably needed to bid in the first wave of mobile license auctions back in the early 2000s. Several billion Swiss francs were necessary, if the prior auctions in the UK and Germany were any indication. As it turned out, though, they weren't any indication. One of the prospective bidders—Sunrise—pulled out at the very last minute, making the price tag drop far below expectations.[1] The maneuver, then, ultimately proved unnecessary. Meanwhile, Swisscom continued to rent rather than own the place. By 2014 the company had completely evacuated the area, leaving the site in various states of abandonment.

Fig. 1

As a result, on this uncomfortably cold December morning, I found myself not in the building that for some thirty years had housed the data-processing machinery of Switzerland's erstwhile largest provider of "services"—from 1967, when ERZ/W had opened its doors, until 1997/98, when PTT was broken up and its telecom branch incorporated—but some fifty meters to the east. And about eighty-one meters above ground. Standing on top of the concrete-clad Labor-Hochhaus, I took in the view—the city, a graveyard, scattered construction cranes, the rolling hills stretching out toward the Alps … and the mostly desolate complex of buildings at our feet that had once

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On these auctions, see Josef Egger, *Die Genesis eines alternativen Telekomanbieters im Gleichschritt zur schweizerischen Telekomliberalisierung*, Preprints zur Kulturgeschichte der Technik 28, Zurich, 2008, p. 24. Incidentally, Sunrise was (and is) another deregulated offshoot of Switzerland's formerly public enterprises, the railways in this case.

Fig. 1
PTT R&D skyscraper (under construction), 1970. (© PTT Archiv, Köniz, D Tele 195 - 0003: 01)

Fig. 2

made up PTT's Technisches Zentrum (Technology Center). This comprised various garages, logistics facilities, laboratories, and depots; the nearby train tracks (PTT's precursor organizations had moved into the area by the late nineteenth century); a spacious parking lot, nestling against ERZ/W, now covered in weeds; and the two-story staff canteen, also built in the 1960s, by which time the population of Bern-Ostermundigen, to give these outskirts a name, would peak at about 15,000—up from a few thousand in 1950.

Swiss suburbia. Or, as a 1983 tourist brochure from the PTT Archives, graced with the paintings of Paul Klee—*Quarry at Ostermundigen*—somewhat nostalgically recorded: rather "explosive" growth. "[S]tatistically speaking," by the time ERZ/W arrived on the scene, it had become a minor city unto its own.[2] Indeed, "[i]n this, Ostermundigen [was] no exception," the PTT Directorate General was told (with some alarm) back in 1962. It was a place where new apartments had multiplied "much like mushrooms." Which was why long lines formed at the post office (a new one was being planned) and why newcomers who wanted a telephone had to be put on a waiting list. (The local telephone exchange dated from 1926, maxing out at about 2,800 connections, and it, too, was about to be replaced.)[3]

The buildings that went up in and around Ostermundigen, to be sure, pale in comparison with, say, the ones in Ivrea, where Adriano Olivetti had been dreaming of a *Città dell'uomo* (1960) and where Le Corbusier himself was commissioned to a design a vast, futuristic Centro di calcolo elettronico, complete with showers, cloakrooms, and an encephalon-shaped floor plan.[4] But the Technisches Zentrum and the residential buildings nearby and the neatly landscaped PTT headquarters (1965–1970)—located in a different part of Bern, and providing office space for some 1,000 people—clearly were an expression of that same moment. Further afield, beyond the circumference of the Zentrum, I thus discerned, or tried to, what must have been "Rueti I," "II," and "III"—yet another relic, that is, from the mid-1960s: patches of land pur-

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"Ostermundigen," 1983, OK 0117: 01, PTT Archiv. As the brochure explained, the commuter-friendly suburb had been blossoming notably in the three or so decades "since the last war." Only in the mid-1970s, following the recession, did things stagnate somewhat. Franz Hohler's *The Fringe of Ostermundigen,* a 1973 short story featuring "a man nobody [knew]," made a similar point (in more bemusing terms): it is, or was, a quite generic, ordinary place.

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"PTT Gebäude, Ostermundigen. Betriebswirtschaftlicher Bericht," January 23, 1962, OK 0117: 01, PTT Archiv.

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Le Corbusier's Centro, to be based in Rho, near Milano, was never completed. See Silvia Bodei, *Le Corbusier e Olivetti. La usine verte per il Centro di calcolo elettronico*, Macerata, 2014.

Fig. 2
PTT ERZ/W, top view with parking area. (© PTT Archiv, Köniz, D Tele 195 - 0003: 03)

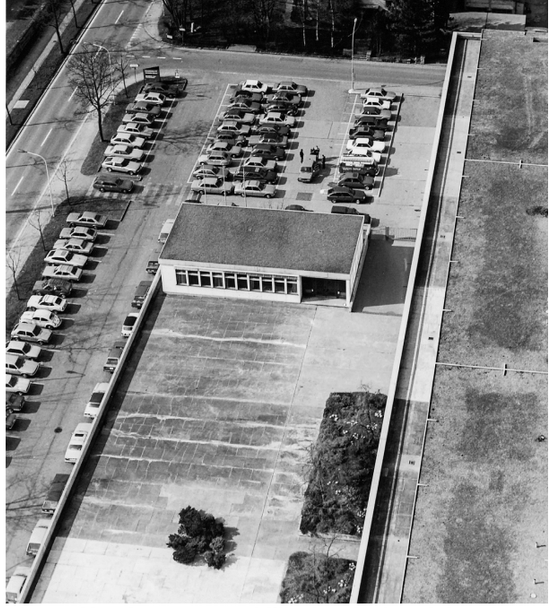

Fig. 3

chased by the state and filled up by local developers with modern apartment buildings, lodgings, and small family homes for PTT personnel. Some came with balconies, some with subsidized refrigerators; others, including the spartan rooming house destined for the "girls" from ERZ/W's "data entry" division, came with shared amenities, notably a TV room, as I'd previously discovered when browsing through PTT's archival collections. Not too much, in fact, has been preserved relating to this once-magnificent computing center: the odd picture, the occasional yearbook, heaps of technical drawings, dating from the construction phase in the mid-1960s.

The world of ERZ/W, or indeed that of PTT, has by and large disappeared, in other words. It's an impression difficult to avoid, at any rate, when paying a visit to the Technisches Zentrum these days: the scenery can be a bit glum, almost as if to vindicate the old swan songs for PTT. Unsurprisingly, these had steadily swelled since sometime in the 1980s, when PTT's expansive monopoly began to be seen as a liability—its near-exclusive right, that is, dating from the early 1920s, "to establish and to run any kind of transmission or receiving machinery serving the transmission of electric and radio-electric signs, pictures, or sounds."[5]

It was, as I'd soon come to appreciate, a similar spirit that animated histories of PTT, many of them written in the 1990s or early 2000s, many of them echoing what had long ossified as so many truisms: the state cannot innovate, markets do; the public, "classic" PTTs were "legacy powers"; one definitely couldn't pull off such things as the Internet by way of any "central committee, planned economy, or infrastructural policy"; it required "a mixture of rebellion and uncontrolled growth," and so on.[6] In these histories, ERZ/W, to be sure, barely gets a mention—PTT, after all, was a huge organization, employing 64,841 people at its peak, doing many things *besides* internal administration (i.e., what ERZ/W was for, by and large). Meanwhile, the few histories that do tell of ERZ/W typically tend to approach it, naturally enough,

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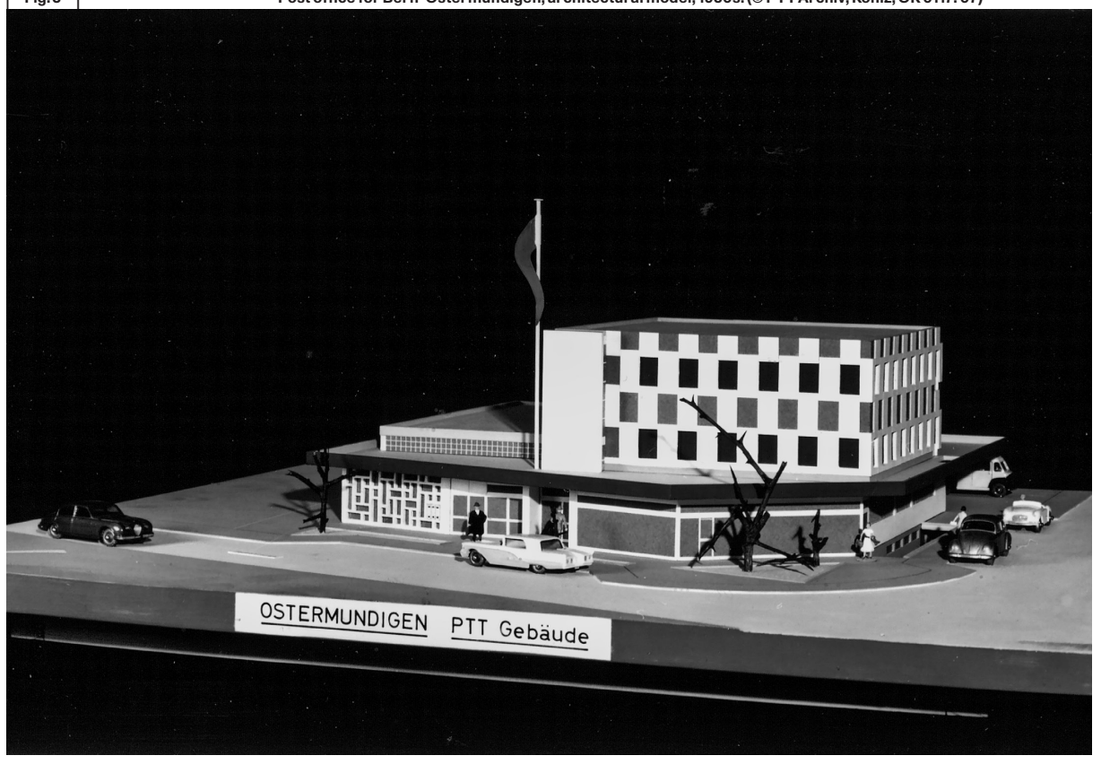
Translation as per Peter Zweifel, ed., *Services in Switzerland: Structure, Performance, and Implications of European Economic Integration*, Berlin, 1993), p. 104.

6

See, for example, Richard Cop, *Telekommunikation in der Schweiz – Geschichte und Perspektiven einer Technik im Wandel*, Zurich, 1993; Philipp Iscer, *Umbau der Telekommunikation. Wechselwirkungen zwischen Innovationsprozessen und institutionellem Wandel am Beispiel der schweizerischen PTT (1970–1998)*, Zurich, 2007; cited is "Klick in die Zukunft," *Der Spiegel*, no. 11 (1996), p. 81.

Fig. 3 Post office for Bern-Ostermundigen, architectural model, 1950s. (© PTT Archiv, Köniz, OK 0117: 07)



as something that did something *to* PTT: much like Rechenzentren (data centers) elsewhere—many similar ones shot up at the time—would gradually transform the ways of retail, banking, insurance, industry, and, indeed, of government.[7] And, sure enough, a case could be made that the managerial techniques adopted, refined, or initiated at ERZ/W and allied operations at the time—at computer services firms, at consulting agencies, at university institutes peddling in "scientific management," "automation," or "operations research"—soon radiated outwards, transforming the ways PTT and other (Swiss, in this case) corporations or state agencies were run.[8]

And yet, as I stood there amid the ruins of Ostermundigen, framing it this way didn't seem right: it seemed like a partial, even computer-centric, view. It's a view broadly in line, to be sure, with the ways we tend to construe the contemporary data center (a building-with-lots-of-computers-inside, owned by tech companies); and one in line, too, with the peculiar division of labor that historians have tended to adopt when approaching the making of the digital age (computing here, infrastructure or telephony there). But it's also a view largely oblivious of the fact that PTT was once itself a formidable force of change. Historically speaking, this framing—building-with-computers-inside—can be a little deceptive, in other words;[9] it tends to obliterate, for one thing, said "legacy powers," be they the German Bundespost or the British GPO or the Swiss PTT. What follows, consequently, is an attempt to portray ERZ/W, Ostermundigen, as a product *of* PTT—as something contiguous with, rather than exogenous to, this vast, sprawling operation with its projects and buildings and people. Certainly in the case at hand, this chapter argues, making too much of the fact that the highly modern computing center, ERZ/W included, was a transformative thing (and it undoubtedly was) would mean accentuating a familiar, entrenched, and somewhat one-dimensional narrative at the expense of those very forces that had arguably made Switzerland "digital" in the first place.

That PTT would have been such a force is a trivial observation, to be sure. However, it's also a narrative receding from collective memory: one whose nuances, in this age of Alphabet/Google, Alibaba, and kindred unfathomable entities, seem ripe for revisiting.[10] More broadly, of course, these two histories—computing and telecommunications—can't be separated so neatly.[11] By the late 1970s, when ERZ/W was firmly established as PTT's in-house data-processing outfit, there was indeed much excited talk of convergence between precisely these two fields—an entanglement then typically referred to as "telematics." It's a term that has since fallen out of fashion, having been replaced by "cyberspace" and "the Net," then "cloud" and

7 Much like Amazon Web Services or Microsoft Azure, if you will, are poised to transform public and/or private corporations today. On this earlier moment, see, for example, Joanne Yates, *Structuring the Information Age: Life Insurance and Technology in the Twentieth Century*, Baltimore, 2005; Jeffrey R. Yost, *Making IT Work: A History of the Computer Services Industry*, Cambridge, MA, 2017.

8 On such dynamics, see the ongoing project "Aushandlungszone HERMES" by Nick Schwery, https://www.tg.ethz.ch/projekte/details/aushandlungszone-hermes; for a particular case study, see Daniela Zetti, *Personal und Computer. Die Automation des Postcheckdienstes mit Computern, ein Projekt der Schweizer PTT*, Preprints zur Kulturgeschichte der Technik 22, Zurich, 2008.

9 Even while "networks" inevitably play into this frame, of course, arguably, much of the historiography in question tends to be Internet-centric. See, for example, Tung-Hui Hu, *A Prehistory of the Cloud*, Cambridge, MA, 2015; Julien Mailland and Kevin Driscoll, *Minitel: Welcome to the Internet*, Cambridge, MA, 2017.

10 As I write this, for instance, movements are underway in both the US and the UK—pioneers in matters of telecom deregulation—that push for the breakup of "Big Tech," the "renationalization" of broadband infrastructures, and so on. In a more academic vein, the private enterprise = innovation equation, too, has lost much of its erstwhile, quasi-dogmatic self-evidence. See, for example, Mariana Mazzucato, *The Entrepreneurial State: Debunking Public vs. Private Sector Myths*, London, 2018.

"tech"—things less obviously telephonic, and things that, at any rate, happened in California, or maybe in Japan or in China. No question: it's doubtful that anyone who wanted to explore this history would have to travel to Ostermundigen of all places. ERZ/W, as we shall see, wasn't even in the business of "tele-informatics," as it was called in an internal memo from 1985 on "Developments in Electronic Data Processing."[12] Certainly by the 1990s, by which time deregulation was gathering speed, ERZ/W had become a minor asset; even the distinction of being the largest Swiss computing center was now a thing of the past, ceded to operations such as Credit Suisse.[13]

And yet ERZ/W or, rather, its surroundings, as the following suggests, isn't such a bad place from where to revisit this history. For these surroundings ultimately point to a different kind of narrative, as I hope will emerge in due course: a narrative infatuated less with the disruptive powers that be—"tech," "the digital," "the cloud"—as with the things that have been undone in the process.

As for the "center," to which I would return on another day, only a few sparse details disturbed the drab scenery, exacerbated on that day by the thick, gray clouds hanging over Ostermundigen: the "focus" cubicles, for instance, which must have been added to the spacious, period-style open-plan offices sometime in the 1990s; and, visibly a product of that same era, the mint-green cafeteria in the adjacent high-rise, featuring a lounge area of sorts and dot-com-era wall decorations—courtesy, as my guide wryly noted, of the renowned architecture firm Herzog & de Meuron. Puzzled by the (mostly) young men who wandered about in the R&D skyscraper, I also gathered that the building was currently being populated with start-ups and artists' studios—for fear of squatters. (It is, as the real-estate person I had erroneously contacted told me, of course rather difficult to actually rent out a place this huge.)

II Concentration

As for the history of IBM [Switzerland], the introduction in 1955 of the PTT utility bill punch card proved a landmark event.
"Sie begannen zu dritt," *mosaic IBM Schweiz*, 1979

The erstwhile Labor-Hochhaus, once proudly celebrated as Bern's very own skyscraper, commands, in other words, a somewhat depressing view today: a place muffled in a strange sort of melancholia—ruins, if you will, of what one Swiss newspaper disparagingly referred to as "mégalomanie" when, in 1958, it first got wind of PTT's plans to expand into the area: "des somptueux palais postaux."[14] At the time, such sentiments would have been few and far between,

11 See, for example, Andrew L. Russell, *Open Standards and the Digital Age: History, Ideology, and Networks*, Cambridge, 2014.

12 ERZ PTT, "Entwicklungen in der Informationsverarbeitung und ihre Auswirkungen auf die Standardisierung der EDV in Unternehmen," October 1985, Tele 195-0011: 04, PTT Archiv.

13 Interview with Hans Rehmann by Sascha Deboni and Max Stadler, April 9, 2019.

14 "Un gratte-ciel de 45 étages," *Tribune de Genève* (January 10, 1958), OK 0117: 07, PTT Archiv.

Fig. 4
Boxes with IBM punch cards, PTT Punch Card Division, Zurich, 1959. (© Museum für Kommunikation, Bern)

Fig. 4

of course. While state bureaucratic largesse, along with the "shades of socialism" that it presumably signaled, had its distractors, more likely that contemporary observers would have insisted on the naturalness of state monopolies in matters of communications, and thus on a certain technocratic grandeur.[15] "[S]tate bureaucratic integration," as one 1960 treatise on "automation" put it, "[was] only the logical expression of the postal services' exclusive duty to fulfill a society's communicative needs and requirements."[16]

By the same token, such requirements had to be fulfilled "optimally," which is why PTT's very raison d'être—the so-called common good, or what the Swiss call *service public*—had become deeply entangled with questions of rationalization: the pursuit of efficiency by each and every means available, be that mechanized letter-sorting, automatic telephone exchanges, or a system of postal codes (which would be introduced in 1964, trailing behind only the US and West Germany).[17] To wit: the vanguard role that PTT would play in Switzerland as an early adopter of advanced, namely electronic, computing machinery—including (reportedly) Switzerland's very first off-the-shelf digital computer, an IBM 650, which ERZ/W's precursor organization, the *Lochkartensektion* (Punch Card Division), took delivery of in 1957. In no time, PTT's electronic machine park had grown to include an IBM 7070, five IBM 1401 systems, and (from 1968) an IBM S/360 M50 mainframe.

And, sure enough, these acquisitions were accompanied by the usual Automation Age hyperbole: they meant emancipation from monotony and mind-numbing drudgery, the machines themselves being a product of an eminently scientific age, "l'ère des organisateurs," about to deliver a death knell to the present, outdated "monde du papier."[18] To a monopoly enterprise lacking competition and not bound by the profit motive, such enterprising measures were all the more important, as the head of PTT's Financial Division, Dr. Fritz Sauser, explained. Data processing, whether electronic or "conventional," was labor-saving, the rhetoric went, thus cost-saving, thus rational.[19]

15 Cited is Max Silberschmidt, *Amerikas industrielle Entwicklung. Von der Zeit der Pioniere zur Ära von Big Business*, Bern, 1958, p. 12.

16 Johann Rohde, "Post-Versand," in *Aspekte der Automation*, edited by Harry W. Zimmermann, Basel, 1960, p. 182. This mentality is still palpable when flipping through, say, the pages of *Revues des PTT*, the in-house magazine and premier outlet for parading the nation's new postal buildings (invariably functional and modernist-looking), PTT's (generous) social welfare facilities, or its stupendous investments: "hundreds of millions of francs," as one 1960 article on long-distance communications excitedly reported, had already been put into cables alone.

17 See, for example, "Mechanisierung und Automatisierung. Die schweizerische PTT im Angesicht kühner Neuerungen," *PTT-Union* 63, no. 24 (June 17, 1960), pp. 1–2; Generaldirektion PTT, *Die Postleitzahl. Gründe und Hintergründe*, Pressedienst, 1964.

18 In the words of Charles Frédéric Ducommun, PTT's director general from 1961 to 1970. See Charles Frédéric Ducommun, "Ostermundigen: le centre de calcul électronique de l'entreprise des PTT et sa significance humaine," *Gazette de Lausanne* (June 29, 1967), OK 0117: 07, PTT Archiv; and see "Gedanken für Pressekonferenz vom 27.4.60 bei F 5," 1960, 2, Tele 195-0011: 04, PTT Archiv.

Fig. 4

Fig. 5

It was, at any rate, the only viable response to the looming dearth of skilled labor.[20] And, as Sauser's subordinate, Arnold Reber, the (then) "chief" of PTT's punch-card operations, noted in 1960, on the occasion of moving his outfit into their new, temporary premises in Zurich-Wiedikon: "repetitive bulk jobs" —telephone bills, payment notices, payrolls, and so on— quite simply had been escalating continuously at PTT. One therefore had to "cherish the means that technology offered," Reber noted, adding ominously that the "state enterprise [was], so to speak, an institution made for eternity."[21] Not quite. Naturally enough, though, PTT functionaries were inclined to think this way, taking pride in the many superlatives that came attached to this monopoly enterprise. PTT was, after all, Switzerland's largest employer (with 35,898 employees in 1959), its largest real-estate owner/developer, a major investor in telecommunications infrastructure (per capita, the most magnanimous, globally), a mover of more cargo per capita than anywhere else, and the operator of the densest telephone network *worldwide*.[22] Not surprisingly, the sheer scale of PTT's operations entailed considerable administrative efforts: "incessant floods of paper," in the words of Sauser above.[23] And unsurprisingly, too, as the *Neue Zürcher Zeitung* noted back in 1956, PTT operated a rather large "punch-card organization" (Switzerland's largest, in fact).[24]

Indeed, without PTT's multiple and manifold public "services"—transport, logistics, finance, telecommunications—the country's "spectacular economic performance" quite simply was unthinkable, as was expressed in a 1961 memorandum to the Swiss government in an attempt to justify the considerable outlays that PTT required that year for projected expansions, the Technisches Zentrum included.[25]

Some 61,386,500 Swiss francs had already been put aside for the latter;[26] another 2,391,000 were requested on the occasion, because, owing to peculiarities of Ostermundigen's subsoil, construction works at ERZ/W—initially costed at 19.5 million—had run into difficulties. (It was then

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The profit motive, it was admitted, might have reined in inefficiencies; in its absence, the "principle of rational management [betriebsökönomisches Prinzip] assume[d] the highest priority," as he put it. See Fritz Sauser, "Die Entwicklung der Lochkartensektion PTT," April 21, 1960, Tele 195-0011: 04, PTT Archiv.

20

"Gedanken für Pressekonferenz," 1960; the perceived pressures of a labor market that had severely "dried up" then provided a fairly consistent refrain to the efforts of ERZ/W. See, for example, Alphons Stadler, "Der Zehnjahresplan des Elektronischen Rechenzentrums PTT," *PTT Revue*, no. 1 (1971), p. 3.

21

"Gedanken für Pressekonferenz," 1960.

22

See "Die Rationalisierung des Postbetriebs," December 27, 1960, 54.45.19, SOZARCH; Sauser 1960. Philippe Braillard, *Switzerland as a Financial Center: Structures and Policies*, Dordrecht, 1988, p. 191.

23

Sauser 1960.

24

It was widely visible, too. In fact, the NZZ report went on, "almost every family ha[d] made acquaintance with the punch card," because PTT had just recently taken to sending out punch-card bills for radio fees and telephone services. See "Lochkartenverfahren und elektronische Data-Processing-Maschinen in der Schweiz," *Neue Zürcher Zeitung* (September 6, 1956), p. 27.

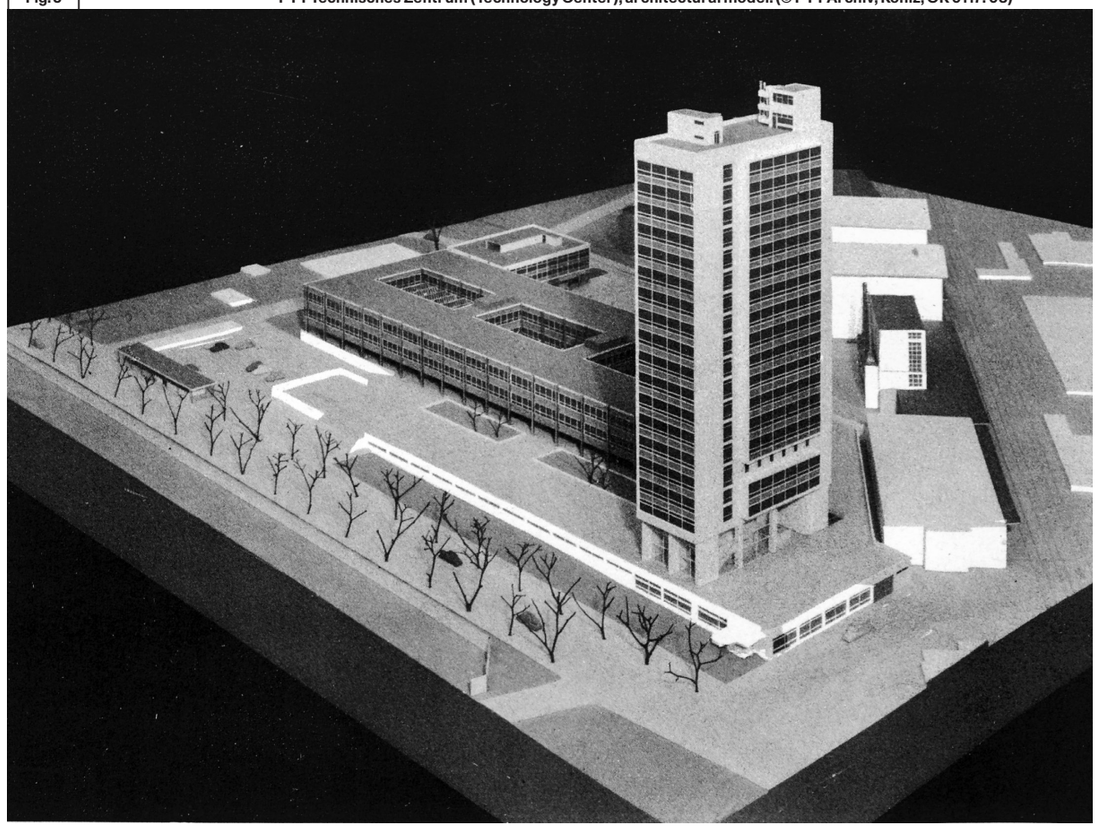
25

"Verhandlungen der Eidgenössischen Räte Nr. 8202/1961," June 7, 1961, p. 1, OK 0117: 01, PTT Archiv.

26

"Ein PTT-'Wolkenkratzer' in Ostermundigen," *Neue Berner Nachrichten* (February 11, 1958), OK 0117: 07, PTT Archiv.

Fig. 5 PTT Technisches Zentrum (Technology Center), architectural model. (© PTT Archiv, Köniz, OK 0117: 08)



decided to add a third basement level, rather than put ERZ/W on "stilts," as had been planned initially.)[27] Ostermundigen's *palais postaux* had otherwise been meticulously planned, the ERZ design having been commissioned from the architectural company Frey + Egger, W. Peterhans, who had already made a bit of a name for themselves. They had, for example, just recently designed the new city hall in nearby Olten—a modest, tower-like office building somewhat reminiscent (it is said) of Le Corbusier's Unité d'Habitation in Marseille—and, somewhat less practical, a church in Biel, made almost entirely of concrete and adorned with abstract sculptures.[28] For PTT, they would create an "avowedly functional building," as a local newspaper put it on the occasion of the (much delayed) opening ceremony in 1967; it featured mobile partitions, cable ducts, raised floors and ceilings, state-of-the-art air conditioning, and an intercom system. "The principle of flexibility ha[d] been followed throughout."[29]

The site had in fact been chosen as early as 1951—a decision backed up in 1955 with an expert opinion issuing from the fledgling Handels-Hochschule in St. Gallen. The "spatial resources [were] depleted," PTT officials were concerned, due to the "extraordinary growth in commerce and communication." Worse, essential PTT facilities were scattered around Bern as a result, which incurred additional costs and a waste of precious time. The R&D department, for instance, had seen a fifty percent increase in personnel in recent years. Its engineers were now toiling away in various places around town. The "Radio Service" was similarly suffering from dispersal. The same fate—lack of space—troubled the upstart Punch Card Division: in 1949, in what was considered a makeshift solution, the entire operation had been outsourced to Zurich, first to the so-called Fraumünsterpost, then, as noted, to Zurich-Wiedikon.[30] And it kept growing—from twelve people in 1949 to 184 in 1962. The experts from St. Gallen, part of an incipient wave of management scientists, operations researchers, and, indeed, "*organisateurs*" in the style of IBM Extension Suisse—a company whose local footprint grew from thirty or so employees in 1943 to 500 in 1960 to 2,350 in 1977[31]—thus recommended "concentration" as a matter of "economic principle." The Punch Card Division in particular was deemed to require "permanent, intimate contact" with all the PTT departments that might profit from its services.[32]

ERZ/W, much like the Punch Card Division that had birthed it, would duly fashion itself as the *Dienststelle aller Dienststellen*—the "service center of all service centers": one that wouldn't be content with routine administrative duties (such as processing radio fees), but would instead be able to offer various statistics on PTT performance, conjure up projects so as to boost "productivity," and even extend its services to "third parties."[33] In

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"Verhandlungen der Eidgenössischen Räte Nr. 8202/1961," p. 6. Because there was an ongoing "boom in construction," however, which absorbed developers' capacities, completion of ERZ/W would be delayed even further (until 1967).

28

"Betonwand in der reformierten Kirche in Biel-Bözingen," *Das Werk: Architektur und Kunst* 56, no. 3 (1969), pp. 191–93.

29

"Elektronisches Rechenzentrum (ERZ) und Wertzeichen- und Drucksachenabteilung," *Der Bund* (October 3, 1967), OK 0117: 01, PTT Archiv. Needless to say, in the absence of much other guidance (architectonically speaking), this principle was deemed supremely important: technological change in matters of computing was rapid, after all, and it would likely even be more rapid in the future.

30

"PTT-Bauten für technische Dienste Bern-Ostermundigen," November 6, 1957, p. 1, p. 7, p. 9, OK 0117: 01, PTT Archiv; "Das TT-Magazin- und Werkstättengebäude in Ostermundigen," *Der Bund* (December 3, 1951), OK 0117: 01, PTT Archiv.

Fig. 6
PTT ERZ/W, basement, 1967.
(© Museum für Kommunikation, Bern)

Fig. 6

1969, reflecting the ERZ's growing ambit, the computing center was extracted from "F5" (the accounting department) and attached directly to the PTT Directorate General.[34] And already, new acquisitions were being scheduled. Existing capacities would soon be exhausted. By 1968, the aging "EDP System 7070" alone was in nonstop "production" [sic] twenty-two hours a day (up from twelve hours in 1965), operated in three shifts.[35]

Meanwhile, the drive toward concentration evidently hadn't stopped short of matters of data. The new PTT headquarters, which would eventually have a slightly more bucolic air about it, was then about halfway through construction: from 1970 onward, it would provide much-needed office space and plenty of shrubbery.[36] In addition, the Bundesrat (Federal Council) had previously secured some 40,000 square meters of land in Ostermundigen, enough to fill with 270 apartments, a rooming house for unmarried personnel, and "social housing"—some 625 apartments in total.[37] The R&D skyscraper alone, which doubled as a transmission tower, would offer laboratory space for 240 men of science, bringing them together, it was said, in order to "direct" PTT's technological endeavors. By the time the building was nearing completion in the early 1970s, it, too, was peering into a future of zeros and ones: the transmission of "speech, music, data, images" by digital means.[38]

31

P. Haegi, "35 Jahre bei der IBM Schweiz," *mosaic IBM Schweiz* 11, no. 1 (1972), p. 20; "Organisationsstruktur und Management System der IBM Schweiz," *mosaic IBM Schweiz* 16, no. 2 (1977), p. 4.

32

Alphons Stadler, "Umzug des elektronischen Rechenzentrums PTT," *PTT Revue*, no. 6 (1967), p. 161; the preference for such "central" solutions would have been entirely typical, of course; in part, simply as a matter of cost. See, for example, Heinz-Leo Müller-Lutz, "Zentrale oder dezentrale Lösungen," in *Das programmierte Büro*, Wiesbaden, 1960, pp. 160–61.

33

Arnold Reber, "Der Aufgabenbereich der Lochkartensektion PTT," April 20, 1960, Tele 195-0011: 04, PTT Archiv; Stadler 1971. The emphasis—on improved surveys, reports, statistics on the "Betriebsgeschehen" (operations), and thus on enhanced productivity—was, needless to say, entirely in line with manufacturers' newspeak. See, for example, *Rundgang durch die IBM*, Zurich, 1960.

34

Stadler 1971, p. 3.

35

Alphons Stadler, "Ein neuer Grosscomputer im Elektronischen Rechenzentrum PTT," *PTT Revue*, no. 12 (1968), p. 325. One might say that ERZ/W itself had grown into a vast, sprawling kind of machine, processing (by 1967) per annum some 20 million telephone bills, 1.2 million radio bills, 150,000 newspaper subscriptions, 41 million so-called *Einzahlungskarten* (deposit cards), 4.5 million overdue notices, 18,000 clothing receipts (for PTT personnel), 510,000 pay slips, and a host of other things.

36

W. Neukom, "Grünflächenplanung zum Verwaltungsgebäude der Generaldirektion PTT in Bern," *Anthos: Zeitschrift für Landschaftsarchitektur* 20, no. 1 (1981), pp. 6–11.

37

"Grosszügiger Wohnungsbau in Ostermundigen," *Der Bund* (November 11, 1966), OK 0117: 01, PTT Archiv.

38

"Forschung bei den PTT-Betrieben. Schrittmacher in Fernmeldetechnik," *Neue Zürcher Zeitung* (February 2, 1973), p. 17.

Fig. 7
Sihlpost (PTT), Zurich, 1962.
(© Friedrich Engesser Foto, Sozialarchiv Zürich, Ar 54.45.19.001)

The Technisches Zentrum, in other words, only befitted an operation like PTT—this "engine of progress," as one late-1950s eulogy had it.[39] It was a public enterprise operating an immense and varied sort of technical infrastructure, including such widely visible landmarks as the Sihlpost in Zurich, a veritable "logistics factory" where in those days cargo was moved on an "industrial scale" (The Sihlpost is now home, incidentally, to Google offices.) The figures were nothing short of astounding: by 1961, the Swiss PTT in total moved some 1.5 billion letters annually, plus 800 million newspapers, plus 98 million parcels.[40] It tended to radio, the parvenu television network, nearly 5.5 million telegrams, 7 million telex messages, and 1.55 billion telephone conversations.[41] It was also, at the time, a major provider of financial services —194 million deposits a year—making it the "poor man's bank."[42] And all this had begun to flow, in some way or another, through what would become ERZ/W.

Fig. 7

III Foreign Bodies

Wirtschaftskrise, Widerstände, Weltkrieg— time and again these three "Ws" had set our efforts back.
Notes on "50 Years of ERZ," Robert Zurflüh, 1976

PTT, in short, meant a lot of traffic: "hypertrophy of administration," as PTT accountants had worried.[43] Indeed, few things in the story so far will surprise readers versed in the history of computing; it was, arguably, this newly "affluent," techno-optimistic world of growth—or, for that matter, this bureaucratic age of escalation in forms, bills, paychecks, records, and transactions—that had spawned so much progress in matters of data processing.[44] Includ-

39
Werner Reist, *Die Sihlpost in Zürich*, Bern, 1957, p. 6.

40
Kreispostdirektion Zürich, "Die Sihlpost Zürich," November 8, 1962, 5, Appendix, 54.45.19, SOZARCH.

41
"Aus dem Geschäftsbericht der PTT für das Jahr 1959," *PTT Revue*, no. 7 (1960), pp. 179–83.

42
In the words of Fulvio Caccia. See Arbeitskreis Kapital und Wirtschaft, *PTT im Umbruch. Liberalisierung und Privatisierung im Brennpunkt*, Zurich, 1996, p. 14.

43
Sauser 1960.

44
Quite despite, that is, digital computers' somewhat sinister reputation as technologies born of war and destruction. See, for example, Jon Agar, *The Government Machine: A Revolutionary History of the Computer,* Cambridge, MA, 2003; Yates 2005; Corinna Schlombs, *Productivity Machines: German Appropriations of American Technology from Mass Production to Computer Automation,* Cambridge, MA, 2019.

45
Hans Rehmann, "Asbestbelag an Decke einkapseln," July 30, 1982, ERZ/W.

46
Case in point: Swisscom's 2014 showpiece data center, ERZ/W's distant offshoot, which is also, as it is billed on their website, the "most modern data center in Switzerland." It is located in yet another suburb of Bern—a nondescript area otherwise dominated by shopping malls, McDonald's restaurants, and the like. Home to some 5,000 servers and Tier IV-rated, it almost lives up to the Shutterstock-type, LED-drenched iconography dominating much of the media coverage relating to data centers. Cited is "Ich würde gern Gebäude für Maschinen bauen (Interview with Rem Koolhaas)," *brandeins*, no. 5 (2019), https://www.brandeins.de/magazine/brand-eins-wirtschaftsmagazin/2019/provinz/rem-koolhaas-ich-wuerde-gern-gebaeude-fuer-maschinen-bauen (retrieved May 22, 2020).

47
On these benefits, see, for example, Copenhagen Economics, *European Data Centres: How Google's Digital Infrastructure Investment Is Supporting Sustainable Growth in Europe*, 2018.

48
See, for example, Sarah T. Roberts, *Behind the Screen: Content Moderation in the Shadows of Social Media,* New Haven, 2019.

49
"Gedanken für Pressekonferenz," 1960, p. 2.

Fig. 9
PTT "IBM Zentrum", Zurich, 1966.
(© ETH-Bibliothek Zürich, Bildarchiv / Heinz Baumann / Com_L15-0161-0236 / CC BY-SA 4.0)

ing the object in Ostermundigen, the one I had ostensibly come here for, the Elektronisches Rechenzentrum ERZ/W: an oblong, fairly inconspicuous "functional building" with tinted panes of glass tinted in green, yellow, and purple sprinkled along its façade—now deserted, deteriorating, and (as it transpired) asbestos-ridden.

Fig. 8

When, on a subsequent visit, I made it inside (this time guided by a man working for a subcontractor for Swiss Post), strolling through its eerily empty hallways, the signs of past glory were ever so few: an orphaned floppy disk, some cabling, a bunch of discarded circuit boards, a stash of files relating to site remediation works in the 1980s and 1990s—good for health reasons, but troubling insofar as decontamination would interfere with system uptime.[45] Half of the tract, in fact, is still basically in its original, late-1960s condition, with linoleum floors now dull and pallid; much of the rest had been renovated and equipped with the aforementioned "focus cubicles." The only signs of life we found in ERZ/W's basement: the heating system, I was told, is still operational, serving some of the adjoining buildings (including, presumably, the handful of start-ups residing in the skyscraper). It once (in 1967) employed upwards of 250 people, 160 of them female, doing things then variously referred to as "repetitive," "mind-numbing," or "monotonous": sixty keypunch "girls," fifty-five secretaries, thirty-five "operatrices."

Fig. 9

And this, in a way, was what had initially brought me here: not PTT, nor subcontractors, nor telephones, but people. Or, rather, what had brought me here was a place or a configuration that was evidently quite different from what pundits call the dispeopled, "unbelievably abstract," even nonhuman kind of space that is the contemporary "data center."[46] As anyone studying the data-center industry will tell you, such construals are of course misleading at best. While the benefits and spillovers the industry brings to local economies are debatable,[47] it (still) generates any number of typically low-skilled jobs: minor armies of clickworkers, content moderators, and so on.[48] They're merely hidden from view, as it were.

Even so, the old ERZ/W still was, shall we say, a more people-centered affair—because of, rather than despite, its "highly delicate machine park."[49] Trivially, somebody still had to mind all those machines:[50] tabulators, collators, keypunches, verifiers, reproducers… Here, for example, is how one automation expert imagined an employee—a "young, well-trained female worker," that is—dealt with a device called a sorter: insert card deck, operate selection switch, depress start key… twelve or so "simple" operations, interspersed with lots of waiting. "Attention [was] basically required only in cases of malfunction (card jam)."[51] Needless to say, the job was almost certainly

Fig. 8 PTT ERZ/W, Bern-Ostermundigen, 1967. (© PTT Archiv, Köniz, Tele 195 - 0003: 03)

Fig. 10 PTT housing estate (Rüti-Ostermundigen), bedroom with telephone, 1967. (© Museum für Kommunikation, Bern)

Fig. 10

more complex and demanding than that. To most, "data processing" nevertheless meant unheroic work—"repetitive bulk jobs."[52] Or, as a more sympathetic account related (thanks to Bernese sociologist Urs Jaeggi):[53] These young women displayed "job-thinking." That is, they had a "realistic attitude. She [the keypunch operator] knows she cannot move up the ranks, and she puts up with it." They "accept[ed] monotony" as well as the considerable psychological pressure that was put on them only because they knew the job wouldn't last for long: namely, "until marriage."[54] Indeed, of those 160 women who arrived at ERZ/W in 1967, 150 were "single."[55] Hence, of course, the rooming house and TV room; hence, too, the "welfare building"; and hence (among other things) the cafeteria, which came decorated with murals.[56]

It's tempting, then, to construe ERZ/W as some kind of primitive precursor to the modern data center, displaced and replaced by successive generations of computing technology, then by networks of computers, Internet companies, and, eventually, new kinds of monopoly enterprises hailing from California and China. In fact, the name suggests as much: *Rechenzentrum*. (The term is still widely used today.) This was certainly the mindset I had had when I arrived, although I had been intrigued not so much by ancient IBM machines as by the post-industrial setting. Or if you prefer, by manifestations of what the Bernese polymath Prof. Hans Zbinden, in his *Humanismus der Wirtschaft* (1963)—a book based on talks he had given at PTT "executive training courses"—framed as "progress as humanization." There was, he said, with a nod to "human relations" and kindred managerial innovations, a special "responsibility" on the part of the enterprise today: "responsibilities which [could] only be ignored or disobeyed by the short-sighted, by, indeed, the obsolete profit motive."[57]

That, of course, was a rather rosy view. (Zbinden, to be sure, also worried, as did much of the contemporary commentariat, about the potentially devastating social and psychological effects of "automation").[58] But clearly enough, even a place such as ERZ/W hat something distinctly *human* about it. And the fact is, despite shifting sensibilities on the part of historians of computing, we don't know all that much about places such as ERZ/W Ostermundigen. These, evidently, weren't mere beachheads of a new breed of technocrats-in-suits (they certainly were that); they also were spaces of fairly

50 At least during ERZ/W's early years, there was a good deal of "conventional" data processing going on, and the lowlier type of "data entry" duties wouldn't be going away anytime soon. For details, see, for example, "Transportgut. Zusammenstellung Maschinen und Zubehör," May 6, 1967, Tele 195-0011: 04, PTT Archiv.

51 Johann Haas, "Büro und Verwaltung," in *Aspekte der Automation*, edited by Harry W. Zimmermann, Basel, 1960, p. 234.

52 As for "repetitive" jobs, these, of course, were legion at PTT, not only at ERZ/W. "Automation" proceeded on many fronts: "Everything that might increase performance [*Leistung*], we'll look into," as one PTT functionary put it in 1960. See "Die Rationalisierung des Postbetriebs," 1960.

53 Urs Jaeggi and Herbert Wiedemann, *Der Angestellte im automatisierten Büro*, Stuttgart, 1963, p. 136. (Neither Jaeggi nor Wiedemann, an in-house sociologist with IBM Germany, ever set foot in ERZ/W, as far as we know.)

54 Ibid., p. 137, pp. 191–94.

55 Stadler 1967, p. 163.

56 "Wettbewerb zur Erlangung von Entwürfen für ein Wandbild im Speisesaal," October 1, 1962, OK 0117: 01, PTT Archiv.

57 Hans Zbinden, *Humanismus in der Wirtschaft*, Bern, 1963, preface.

Fig. 11
PTT housing estate (Rüti-Ostermundigen), common room with television set, 1967. (© Museum für Kommunikation, Bern)

Fig. 11

Fig. 12

monotonous work, or if you prefer, "jobs."[59] If the former worried about their "highly delicate machine park[s]," which shouldn't be exposed to humidity or dust or heat up too terribly, which is why any "computing center" (even then) would have imposed special architectural requirements, a vaguely analogous sort of concern thus pertained to people: the "sensitive employee," in the words of one PTT functionary.[60] In many ways, indeed, the machinic space that was ERZ/W only exacerbated the artificiality of the modern, "industrialized" office: HVAC systems, the modern science of lighting, insulation materials (a flourishing industry), ergonomic furniture, soundproofing, intricate communications systems, and potted plants (which had a reputation of attenuating noise).[61]

More to the point, there are good reasons to construe ERZ/W, Ostermundigen, not only as essentially continuous with clerical spaces of work—not much different, to the majority of people involved, from minding letter-sorting machinery or toiling at the telephone exchange—but to take seriously its continuities with PTT as well. That is, even while (male) ERZ/W actors themselves were prone to fashion themselves as some kind of "foreign body" within PTT, and while their projects met with hostility und resistance,[62] a computing center would have been a "foreign body" only to a certain degree in the technological enterprise that was PTT. It also was, for one thing,

58

See, for example, Hans Zbinden, "Mensch und Technik im Zeitalter der Automation," *Wirtschaftspolitische Mitteilungen* 12, no. 12 (December 1956).

59

Only recently have historians of computing taken a more systematic interest in computing-as-labor, though the concern, per se, is hardly new. See, for example, Ute Hoffmann, *Computerfrauen. Welchen Anteil haben Frauen an der Computergeschichte und -arbeit?* Munich, 1987. More recently, see esp. Jane Abbate, *Recoding Gender: Women's Changing Participation in Computing,* Cambridge, MA, 2012; Mar Hicks, *Programmed Inequality: How Britain Discarded Women Technologists and Lost Its Edge in Computing,* Cambridge, MA, 2017.

60

F. Rauch, "Der empfindliche Mitarbeiter," *PTT Revue*, no. 7 (1963), pp. 182–83. Sociological musings from the 1950s and 1960s are replete with such accounts, noting, for instance, that the modern office made people dress better or develop certain expectations as to the proper "indoor climate." As one PTT personnel manager lamented in 1964: while average office temperatures "at the end of the war" had been around 18–20 degrees Celsius, what was considered "normal" had now risen to 22–25 degrees Celsius (which he felt was excessive). See M. Wüthrich and W. Ernst, "Raumklimatisierung," *PTT Revue*, no. 12 (1964), pp. 288–89; more broadly, see Rachel Plotnick, "The Unclean Human-Machine Interface," in *Computer Architectures: Constructing the Common Ground*, edited by Theodora Vardouli and Olga Touloumi, London, 2019, pp. 114–32.

61

The euphemism in contemporary (German-speaking) industrial sociology would have been *Betriebsklima*—"office climate," an appropriately malleable concept.

62

See Robert Zurflüh, "Tätigkeitsbericht 1976 (50 Jahre Datenverarbeitung ERZ PTT)," 1976, foreword, Tele 195-0011: 01, PTT Archiv; Informatikdienste PTT, *70 Jahre ERZ. Festschrift der Informatikdienste PTT*, Bern, 1996, p. 5; Interview with Hans Rehmann 2019.

Fig. 12
PTT ERZ/W, Bern-Ostermundigen, 1967. (© Museum für Kommunikation, Bern)

part of a *Technisches Zentrum*, the result of so many efforts to rationalize PTT's present and future operations, as we have seen. It was also of a piece with office structures, whose architects—Frey + Egger, W. Peterhans, in this case—may otherwise have built postal branch offices or city halls or churches. And it had developed roots in a postwar, suburban setting that, at least in parts, was an outgrowth of PTT's paternalist ways.

To be sure, any large corporation that could afford it back then was visited upon by a whole series of "entirely new groups": not just data-entry personnel, but operators, programmers, analysts, and system planners. As Jaeggi above, alongside his collaborator, the IBM in-house sociologist Herbert Wiedemann, contended, these latter, more skilled occupations already had established a new kind of "power nexus" within companies and organizations, dismantling established hierarchies, reshaping workflows, and optimizing things. And yet, even they cautioned that the developments that were underway couldn't be properly understood if they were approached "one-sidedly, from the perspective of large computer installations."[63] The modern business of business machines was, after all, a matter involving all manner of machines: typewriters, Dictaphones, Flexowriters, teleprinters, desktop calculators, copier machines, reproducers, filing systems… and telephones.[64] But I'm getting ahead of myself.

IV Fluctuations

DP jobs continue to be attractive…
even in light of the new economic climate.
ERZ PTT, 1976 Annual Report, p. 5

In 1967, when ERZ/W commenced "production" after four and a half years of construction—two years alone having been consumed by electrical and utility installations, getting the HVAC system up and running, and interior fitting—this future was, by and large, still invisible. Even the economic turmoil of the mid-1970s, which would also reshape PTT's data-processing outfit, was a distant prospect. (PTT would incur its first deficit in 1971, which brought on pressure.) But the harbingers of leaner times were already on the horizon. At IBM Switzerland, the computing hegemon that, locally, counted PTT among its earliest, indeed major, customers—a "landmark event" as far as IBM's (Swiss-based) punch-card production was concerned[65]—there already was talk of "Business Effectiveness Program[s]," job rotation, and increased "mobility." When the crisis hit, the newspeak of "uncertainty," "adaptable organizations," and "decentralized enterprise[s]" would only intensify, as would demands for cuts in such areas as "telephony"—a significant instrument for any multinational operation. "A reduction in telephony expenditures by just 10 percent, for instance, mean[t] 200,000 Swiss francs in savings annually."[66]

63 Jaeggi and Wiedemann 1963, p. 2, p. 142.

64 Sure enough, much the same—"impact"—could be said, and was said, about telecommunications. Since anyone could place a call to anyone, technologies of telecommunication had the effect of short-circuiting established hierarchies, as one sociologist of the "industrialized office" put it, causing existing organizations to resemble "circuit diagrams" more than they resembled an army. See Hans Paul Bahrdt, *Industriebürokratie. Versuch einer Soziologie des industrialisierten Bürobetriebes und seiner Angestellten*, Stuttgart, 1958, p. 55.

65 "Sie begannen zu dritt. Werdegang der IBM Schweiz," *mosaic IBM Schweiz* 18, no. 5 (1979), p. 6.

66 See Hans-Rudolf Lüthy, "Die Seite der Geschäftsleitung," *mosaic IBM Schweiz* 14, no. 1 (1975), p. 2, no. 2 (1975), p. 2 and no. 5 (1975), p. 2.

At ERZ/W, certainly part of a slower-moving ship,[67] one effect of this, besides a hiring freeze (1974) and cost-saving measures (average system utilization, for example, dropped by several hours in 1973/74), was reduced short-term fluctuations in personnel. Or as it was put in 1976, somewhat telegraphically, on the occasion of ERZ/W's "50-year" anniversary (counting from 1926, when the first four Hollerith machines had been acquired): "Increased loyalty as a consequence of recession." This consequence was especially pronounced when it came to female employees, who were beginning to stay on noticeably longer: twenty-eight months (on average) in 1973, thirty months in 1974, thirty-six months in 1975, forty-five months in 1976. This was a trend that agreeably meshed with the (similarly new) objective of recruiting fewer part-time aides and more "skilled personnel."[68]

Hitherto, by implication, the turnover rate at ERZ/W had been considerable, the major reasons to quit being marriage, job dissatisfaction, and "advised" discharge, in that order. (Tellingly, corresponding figures for male employees weren't even compiled.) Considering the nature of the implicated "repetitive bulk jobs," such fluctuations aren't exactly surprising, of course. It may also have had to do with the growing willingness on part of the younger generation to question "our institutions, value system, and authorities," as one PTT union boss lamented in 1971.[69] Until the recession, they would easily have been sustained, at any rate, insofar as females, who by the late 1960s had swelled to a flexible, part-time labor force, had served as a convenient "buffer."[70] And needless to say, they were entirely in line with prevailing articles of faith at the time, including at PTT: women were more "resistant to monotony," neater, and less unruly. When it came to the "purely manual tasks such as operating typewriters, calculating machines, etc., the female worker likely [was] … superior."[71]

Such preconceptions were ingrained in PTT's corporate culture, but they were hardly exceptional. By the late 1960s, as one (American) computer worker observed, the "computer field … look[ed] like a feudal hierarchy, with, at the base of the pyramid, a large number of women in keypunching and lower level programming jobs."[72] Even at a company such as IBM, one that (in Switzerland as well) had moved earlier than others toward making gestures to "equal opportunity," contemporary studies found that females were concentrated in unskilled jobs. The only exception to such patterns could be found, as one sociologist pointed out, at comparable institutions in the Eastern Bloc—say, the GDR's computing industry.[73] Things weren't much

67 More so than PTT, of course, a company such as IBM would at the time have been seen as some kind of corporate crystal ball. See, for example, Jürgen Alberts et al, *Mit IBM in die Zukunft. Berichte und Analysen über die "Fortschritte" des Kapitalismus*, Berlin, 1974.

68 Zurflüh 1976, pp. 4–6.

69 "Jahreskongress der PTT-Union," *Neue Zürcher Zeitung* (September 14, 1971), p. 15; more broadly, see Brigitta Bernet, "Mitbestimmung oder Selbstverwirklichung? Kritik und Krise des 'organisierten Unternehmens' um 1970," in *Zwang zur Freiheit. Krise und Neoliberalismus in der Schweiz*, edited by Regula Ludi, Matthias Ruoss, and Leena Schmitter, Zurich, 2018, pp. 61–83.

70 Käthe Biske, *Frauenarbeit in Beruf und Haushalt: Entwicklung in der Schweiz und in der Stadt Zürich nach den Volks- und Betriebszählungen*, Zurich, 1969, pp. 56–63.

different in Ostermundigen. Unlike the men of ERZ/W, to put it crudely, the women never were meant to be civil servants, advancing through the ranks.[74]

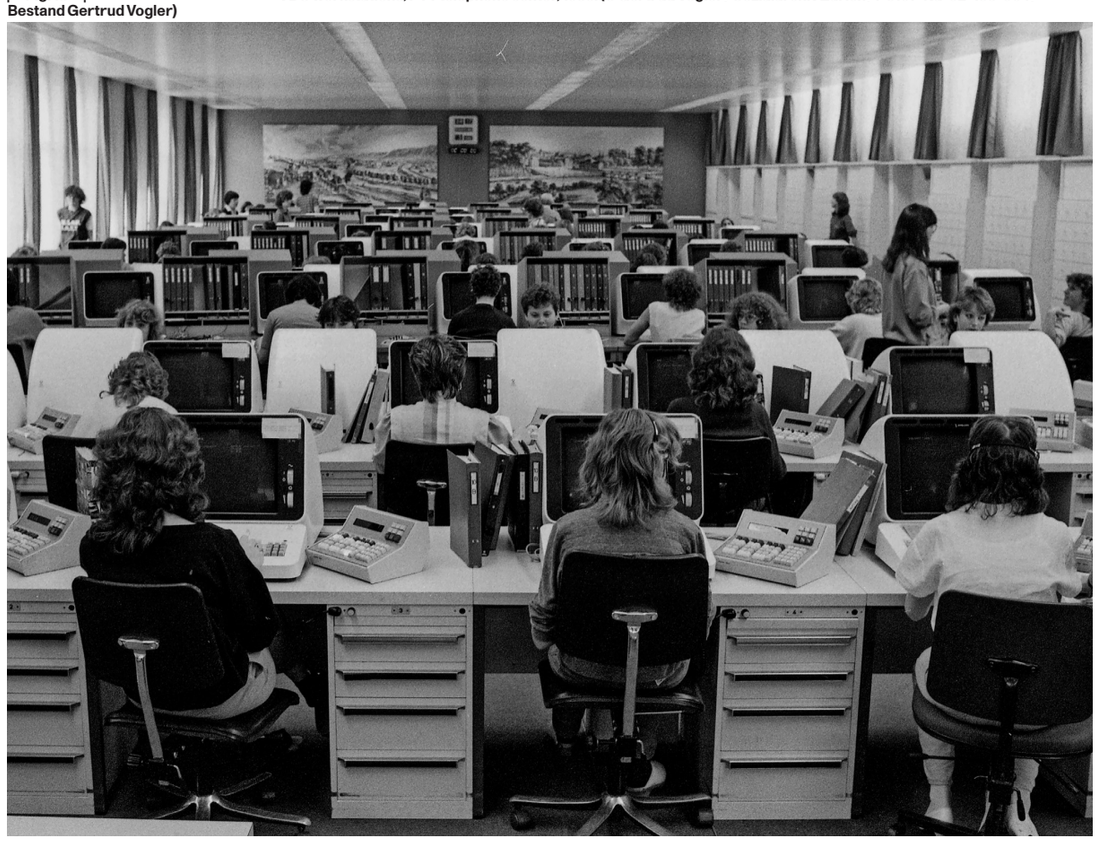
"Conventional" data processing was, at any rate, much like growth or cheap oil or full employment, on its way out. The arrival of magnetic tape—ERZ/W had amassed an inventory of 14,828 tapes by 1975 (up from 4,000 in 1968)—was in full swing by the early to mid-1970s. This brought new opportunities for some, who could now retrain, for instance, as "operatrices," handling the tapes, card readers, printers, and so on. In tendency, however, it made females gradually disappear from the halls of ERZ/W. Or rather, it soon made them reappear elsewhere at PTT, notably at the newfangled, so-called "VDU workplaces," many of which would soon diffuse throughout PTT's branch operations—owing, in part, to projects initiated at ERZ/W, including, for instance, TERCO (Telephony Rationalization with Computers).[75] For its part, the impending demise of punch-card machinery had been prophesied for a while. In fact, and somewhat counterintuitively, card consumption in Ostermundigen would peak in 1974 (at 91.6 million cards per year).[76] The same almost sudden decline then happened everywhere, notably at IBM's punch-card printing plant in Zurich, whose employees fondly remembered PTT as their first "wholesale customer." It alone, in the course of its forty-five years of existence, produced some 20 billion cards. Peak production came in 1972 (5.4 million cards per day), after which things declined rapidly. The plant was shut down in 1977.[77]

When, in the spring of 2019, I had coffee with Hans Rehmann, a longtime DP veteran and ERZ/W's director from 1981 to 1997, he broadly confirmed this picture, recalling that the old Punch Card Division (which he had joined in October 1961) even took in "disabled" people occasionally. The work there was noisy, so the workers used earmuffs; electronic computers brought some improvements, or new job profiles, including the aforementioned "operatrices;" the employees were mostly young and female, staying with PTT for a few years, then marrying and moving on. Trajectories such as that of Lilian Hager, Rehmann's secretary, were thus more of an exception. She had originally trained as a shoemaker, then applied to PTT's Punch Card Division (still a better deal, apparently), eventually landing a proper office job. Rehmann's own career, in fact, wasn't exactly what you'd call streamlined, though it illustrates

Fig. 13

Fig. 14

Fig. 13 VDU workstations, PTT telephone center, 1983. (© Gertrud Vogler / Sozialarchiv Zürich / F 5107-Na-02-138-004 / Bestand Gertrud Vogler)



71

Such issues were hardly endemic only to computing, of course. As a PTT union complained in 1961 apropos the introduction of letter-sorting machines: Because of these machines, men (who were less resistant to monotony) were now threatened to be replaced by female workers, or worse, "degraded to mere women's underlings." See "Betrifft: Mechanische Briefsortierung," March 27, 1961, 54.45.19, SOZARCH.

72

Cited is Joan Dublin, "Woman's Page," *Interrupt*, no. 10 (April 1970), p. 3; more generally, see Hicks 2017.

73

Gerd Peter, *Das IBM-System. Zur Lage der abhängig Arbeitenden in den achtziger Jahren: Disziplinierung durch Programmierung*, Frankfurt am Main,1975, p. 81; and see, for example, "Chancengleichheit? Liberté, egalité … feminité," *mosaic IBM Schweiz* 15, no. 1 (1976), p. 15.

74

They were, in other words, considered a bad investment: destined for marriage, they weren't going to stay. A woman like Wanda Sas, a mathematician, who, as part of her work at IBM, ran "simulations" for PTT with an eye on the "rationalization of telephony via computer" (TERCO), were pretty much the exception. See "Mathematiker bei der IBM," *mosaic IBM Schweiz* 14, no. 4 (1975), p. 9.

75

In terms of workforce, ERZ/W was growing, generally speaking. In line with broader trends in IT, however, the proportion of female workers was in decline: 72% in 1962, 49% in 1981, 22.5% in 1996.

76

Zurflüh 1976, p. 9.

77

"Tempi passati. Eine kleine Geschichte der Lochkartendruckerei," *mosaic IBM Schweiz* 17, no. 1 (1978), p. 22.

Fig. 14
TERCO Computing Center, interior. (© PTT Archiv, Köniz, D Tele-195 - 0009: 01)

something of the unequal opportunities at play: he himself had started out as a lowly PTT driver, but subsequently received diploma training for postal workers (something women couldn't do until 1971).[78] He then transferred to the Punch Card Division "by chance." While taking DP courses with IBM, he now oversaw an *équipe* of five or six women who processed radio bills.[79]

It is, at any rate and unsurprisingly, much easier to find out about men of ERZ/W, the Rehmanns, Rebers, Zurflühs—men with backgrounds in management science or PTT career officers who were busy thinking up projects and acronyms: ATECO, TERCO, APOCO, MATICO, FIRICO. The women, in contrast, typically don't show up in the record except as figures: as fluctuations, discharges, keystroke frequencies: 502,380,201 keystrokes in 1975, 501,348,039 keystrokes in 1976 (which in fact meant a performance increase of 7.8 percent because of a simultaneous decrease in "traffic").[80] A rare exception, if you will, were moments of exceptions, of which there were few, because even in those days a premium was placed on system "availability"—uptime.[81] By the late 1970s, such concerns had begun to translate into a language, still familiar, of "operational security": uninterruptable power supplies, "inconspicuous, non-exposed location[s]," "sabotage protections," and so on.[82]

But just ten years prior, such concerns were nascent at best. Notably, the move in the spring of 1967 from the old Zurich "IBM Center" (as it was sometimes called) to the brand-new, Bern-based ERZ/W caused a set of fairly different problems. It was a meticulously planned, eight-day maneuver: downtime was to be avoided at all costs; the delicate, expensive machines weren't to be damaged during transport; and operations had to resume smoothly—which meant headaches inasmuch as relocating to the Technisches Zentrum meant transplanting an entire organization or, for that matter, a few hundred people, many of whom had put down roots in Zurich or even "fallen in love" there.[83]

Not everyone made the move. (Those who didn't were asked to quit by March 1967.)[84] "[I]n order to staunch the growing flood of

78 Albrecht Eggenberger, "Die Frau bei den PTT-Betrieben," *Gewerkschaftliche Rundschau* 67, no. 3/4 (1975), p. 123.

79 Interview with Hans Rehmann 2019. To give another example, Carlo Müller, one of the men overseeing PTT's system IBM 1401/1410, had started out delivering mail for the "Express Service." Having picked up what was an exotic and valuable skill set, he helped to build up Zurich's municipal computing center before moving to Ticino, peddling Memorex products. See Carlo Müller, *Carlo's Story. Erinnerungen und ein Dankeschön*, Frauenfeld, 2008, pp. 75–76.

80 Zurflüh 1976, p. 13. For a (recent) exception, see "Interview with Susanne Kobi," October 8, 2018, 012-SAM-OHP_059, Oral History Project, PTT Archiv. (Susanne Kobi started out at ERZ/W as an "operatrice".)

81 In 1975, for instance, system availability hovered somewhere around 97.1–99.4%, with computers operating up to 15.25 hours a day—a far cry from current figures or requirements, but still a considerable achievement in the eyes of ERZ/W higher-ups. See Zurflüh 1976, p. 11.

questions" and presumably to tempt his employees, the personnel director, a Mr. Hadler, even put out a special newsletter, the *OM Nachrichten*, which appeared in several issues starting in February 1966.[85] As ERZ/W neared completion, the newsletter instructed the employees of the DP Department on the essentials: on how Bern schools differed from those in Zurich (of interest to married employees); on the cafeteria (which would feature "tasteful furniture and cutlery"); on parking opportunities and where to buy bus tickets; on the option to buy a fridge; on how to organize a "monthly trip back to the parents" (of interest to those not yet married); on which apartment types would be available (with or without a balcony; with two, three, four, or even five rooms); and on the rooming house, which came with rooms that were 12.3 square meters in size, running water, shared toilets, and said TV room. Laundry and kitchen utensils would be supplied by PTT. Rooms had to be cleaned weekly, and so on.

It's rather more difficult to form a clear picture of life *inside* ERZ/W once it was up and running. Surviving photographs, notably those held at the Museum of Communication in Bern, tend either to parade the impressive, vast technical infrastructures sustaining life at ERZ/W (HVAC, power supplies, etc.) or to display the familiar 1960s-era poses similarly destined for the pages of the *PTT Revue*—people and machines, interspersed with potted plants, in clean and bright rooms: numerous women doing data entry, an "operatrice" mounting tapes, the men looking intently at their consoles, studying printouts and manuals, pointing their fingers at switches, or sitting at their desks, being analytic. As for general flair, PTT Director General Charles F. Ducommun's view was probably at least symptomatic: in this era of "cols blancs" (white-collar workers), he wrote in 1967 in a gesture towards ERZ/W's "significance humaine," "l'entreprise est semblable à l'armée."[86]

V Dissolution

Around the world … a stone has been set rolling.
Hans Rehmann, "Das ERZ gestern – heute – morgen," *PTT Zeitschrift*, 1985

By way of conclusion, let us zoom out ever so slightly. Much of the preceding narrative worked, to the extent it did, by virtue of being set in a fairly generic place—suburban Ostermundigen—and by virtue of dealing with a fairly generic thing: the Rechenzentrum. In terms of a history of the data center, however, specifics do matter. The specifics in this case touch upon not only questions of computing, as noted, but naturally upon matters of telecommunications as well. In other words, the very monopoly that had been placed under the control of PTT, and which itself had begun to mutate—reshaped

82 "Raumprogramm für TERCO-Zentren," 1979, p. 3–4, Tele 195-0007: 01, PTT Archiv.

83 Stadler 1967; Interview with Hans Rehmann 2019.

84 Allegedly, the move also met with some resistance from the City of Zurich, which didn't like losing its taxpayers to Ostermundigen.

85 OM Nachrichten, no. 1 (February 10, 1966), p. 1, 195-0011: 05, PTT Archiv.

as a *digital* technology (in Ostermundigen's very own R&D skyscraper, along with many other places).

Telecommunications—or, if you prefer, what by the late 1970s was being floated as "telematics," the incipient "convergence" of data processing and telecommunications—was a big deal.[87] Indeed, while "telephony" may have an air of mid-century about it, the sheer numbers are staggering: in 1986, PTT investments in "telecom installations" amounted to 1.5 billion Swiss francs, peaking at 3 billion francs in 1992; per capita, no other country invested as much. If there were 2 billion calls a year in 1960, that figure had risen to 10 billion a year in 1990. And all this would become increasingly important, financially speaking. By the early 1980s, some two thirds of PTT's profits would derive from telephony.[88] By 1991, international and long-distance voice telephony had become the most profitable PTT branch by far, grossing 882 million Swiss francs, with all other services (local-area telephony, data transmission, logistics, etc.) incurring more or less heavy losses. "These profits," as one survey put it, "have financed almost completely all other PTT sectors including postal services."[89] Indeed, because the future of telecommunications looked so bright and profitable, while that of the so-called "yellow services" (postal delivery and the like) did not, the Swiss PTT, like other "classic" PTTs elsewhere, came under intense scrutiny.[90] Symptomatically, in 1992, a former "top executive" from Alusuisse was brought in. He was duly succeeded by an ex-IBM man to steer PTT through its final phase: *Change Telecom*, as the initiative was called.

Fig. 15

ERZ/W wouldn't be quite the same either, even though being a "data entry typist" at ERZ/W—which in 1984 meant activating (on average) 18.4 million keystrokes per year—was still "purely a woman's thing ... simply because they [were] better at it than men!"[91] (Some things were slow to change.) But change there was. ERZ/W's well-calibrated atmosphere, for one thing, had slowly begun to backfire, or at least the go-to insulation mat-

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Ducommun 1967. Many contemporaries, as is well known, concurred: there would be, in this incipient post-industrial age, a technological sea change, bringing more "intellectual work" to some—the "technical intelligentsia" (as Zbinden above put it)—as well as, for many more, a "loss of function" [Funktionsverlust]. Clerical workers were about to be "reduced," as one sociologist characteristically ventured in 1963, "to more or less mechanical, preparatory functions such as the visual control of data." See Siegfried Braun, "Angestellte im technischen Fortschritt," *atomzeitalter. Information und Meinung*, no. 11 (1963), p. 195.

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On "telematics," see Simon Nora and Alain Minc, *L'informatisation de la Société*, Paris, 1978; Dan Schiller, *Telematics and Government*, Norwood, 1982.

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Rudolf Trachsel, "Freiheit und Staat, Wo stehen die PTT?," in *Entwicklungsperspektiven des Kommunikationswesens*, edited by Universität Bern, Bern, 1983, p. 13.

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Zweifel 1993, p. 111.

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See, for example, Eli Noam, *Telecommunications in Europe*, New York, 1992, who ventured that "it seem[ed] inevitable that Switzerland will have to reconcile telecommunications with its traditional economic function as an international cross-roads. The increasingly electronic form of financial transactions and their resultant distance-insensitivity puts Swiss banks into direct competition with such centers as London, New York, Singapore, Tokyo, and Hong Kong." (p. 186).

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"Elektronisches Rechenzentrum PTT. Dokumentation" (ERZ PTT, 1984), sec. "Die Datatypistin," Tele 195-0011: 01, PTT Archiv.

Fig. 15 PTT ERZ/B, Bern-Ostermundigen, construction site. (© PTT-Archiv, Köniz, D Tele-195 - 0009: 02)

erials of yesteryear did, notably "crocidolite." In the summer of 1982, a high level of airborne asbestos was measured in the computer rooms. (Not a cause for "alarmism," as was cautioned.)[92] Worse, since ERZ/W kept growing, employees were, by the early 1980s, once again scattered around Ostermundigen, temporarily working from no fewer than *four* different sites: "fragmentation of resources," as Rehmann, the incoming director, warned repeatedly.[93] There was also talk now, in the memos penned at ERZ/W, of "job rotation," "continuous education," "personal initiative," and of the challenges wrought by networking and "IDP"—"individual data processing." In 1985, Rehmann proposed a policy of "controlled decentralization."[94]

Indeed, the exterior climate was what had been transformed most of all. The reasons for this are complex, if broadly familiar—and they could hardly be discerned, needless to say, by walking into a 1960s computing center. Nor could even they be gleaned—if there was a "foreign body" in Ostermundigen, it was this—from its more recent sibling computing center: ERZ/B, the construction of which would commence in the fall of 1986. Amid the vaguely high-modernist scenery—the Hochhaus, the local bus stop, and the (admittedly more rustic) Restaurant Waldeck, where I had met Rehmann—its grayish, squat exterior has a less inviting air. In fact, there isn't much to see: while it has six levels, most of them are underground, as if heeding PTT's policy, which had been taking shape during the 1970s, to build critical computing facilities only in "inconspicuous, non-exposed location[s]" and, if feasible, at a safe distance from power plants, factories, and rivers.[95]

ERZ/B, for its part, had been drawn up to contain some of the decentralizing forces that had begun to descend onto Ostermundigen. "[F]ragmentation of resources," indeed, was only one thing. More troubling, not just to the men of ERZ/W, but to administrators of computing centers everywhere, was the chaotic, wildfire-like spread of "microcomputers": a trickle at first that later mutated into a veritable "PC metastasis," bypassing received channels and authorities.[96] This was a new, peculiar "dynamic," as Rehmann noted in 1985, apropos the *Past, Present, and Future* of ERZ/W: "everybody [was] doing data processing now."[97] Already, for instance, local PTT branch offices had taken to simply purchasing their own computers, as if ERZ/W's services didn't exist.[98] Such unconstrained shopping sprees exacerbated the kinds of problems that had been mounting anyway: the proliferation of systems, standards, and protocols, many of them compatible only in theory—by 1985, ERZ/W had to deal not just with IBM machines, but with some twenty different manufacturers of computing equipment.[99] Not least, as a measure of its own success, and certainly reflecting the diffuse Thing that was "telematics,"

92 Hochbauabteilung PTT to SUVA Sektion Chemie, "Asbestbelag an Decke Computerraum," September 20, 1982, ERZ/W.

93 Hans Rehmann, "Das ERZ gestern – heute – morgen," *PTT Zeitschrift*, no. 1 (1985), p. I.

94 ERZ PTT, "Entwicklungen in der Informationsverarbeitung," p. 11.

95 "Raumprogramm für TERCO-Zentren."

ERZ/W had been spawning other "computing centers" besides itself, centers geared toward making Switzerland's infrastructure digital: APOCO centers, ATECO centers, TERCO centers. No longer was there one center, a *Dienststelle aller Dienststellen*. It certainly was a different center: an "Information Services Center," as it was duly rebranded, offering software training, managing IT procurement, and the like.[100]

More ominously, computers had lost their mystique in other ways, too.[101] When planning for ERZ/B got underway in 1984, rather than generating new apartments or cafeterias or gushing articles about "cols blancs," it symptomatically produced a local movement—a citizens' initiative called Livable Ostermundigen—which, alongside a Bernese conservation society, the Heimatschutz, mobilized against ERZ/B. The center would deface the place, it was argued, and represent an "irresponsible intervention" into the suburban idyll.[102] Appeals were made; signatures were collected. PTT, in true technocratic form, was having none of it and went ahead regardless, even expropriating some elderly people along the way. (Whether ERZ/B went underground for security reasons, or to appease neighbors, or both, isn't entirely clear.) More to the point: more broadly, of course, the Swiss PTT, much like PTTs elsewhere, had fallen into disrepute.[103] Pressure, indeed, mounted from all sides, very much despite the fact that the Swiss PTT kept investing so heavily and spawned so many so new products and futuristic services: Natel B, Citycall, Telepac, Voicemail, Teletex, Natel C, Videotex, Arcom 400 (an "electronic mail service"), optical fiber...

"Thanks to these electronics means, large corporations may now decentralize and thus revitalize," wrote the newspapers.[104] But no longer were such feats seen as unequivocal signs of progress, let alone of *service public*. Quite the opposite. If anything, ordinary consumers and (certain) journalists now lamented the lack of choice, the exorbitant prices, and the fact that PTT, by its nature, schemed to monopolize these novel electron-

96 See, for example, Karl-Gottfried Reinsch, "Strukturveränderungen des Rechenzentrums und seiner Benutzer," *Das Rechenzentrum* 5, no. 3 (1982), pp. 171–75; Klaus Rosenthal, "Wenn sich der PC mit dem Großrechner unterhält," *dfz wirtschaftsmagazin* 13 (1984), p. 12.

97 Rehmann 1985, p. II.

98 Interview with Hans Rehmann 2019.

99 ERZ PTT, "Entwicklungen in der Informationsverarbeitung," p. 4.

100 By 1996, ERZ/W hardware purchases amounted to roughly 4 million CHF per year, of which 70–80% went to PCs. See Martin Brogli, *Steigerung der Performance von Informatikprozessen*, Braunschweig, 1996.

101 "Unmistakably," they had become associated by the broader public with such things as "decimation of jobs" and the "compromise of privacy," as Rehmann's predecessor had begun to worry sometime in the late 1970s. See Robert Zurflüh, "Einladung zur ERZ-Konferenz," September 26, 1978, Tele 195-0011: 04, PTT Archiv.

102 "Umstrittenes PTT-Bauvorhaben," *Der Bund* (October 23, 1984), Tele 195-0003: 03, PTT Archiv.

103 There was, as one German Bundespost employee despaired in 1986, a "demonization of telecommunications technology" here, a pushback against "national telecommunications sovereignty" there, including by US firms, which then grew increasingly impatient with Europe's "excessively restrictive and discriminatory" telecom markets. See Kurt von Haaren, "Sichert die Post – Rettet das Fernmeldewesen," *Gewerkschaftliche Monatshefte* 37,

ic services, too ... as if there hadn't already been a flourishing black market in illegal phones "from the East."[105] Economists of a neoliberal persuasion predictably came out against the "billions in subsidies" which, in their view, promoted the lack of "innovative disposition" on the part of recipients, including PTT's halo of suppliers.[106] Swiss investment bankers, in turn, by the early 1980s had garnered a reputation of putting their money on only "certain types of high-technology companies ...—Fujitsu, Matsushita, and Hitachi."[107] And for a new kind of left, more inclined to pirate radio stations than state monopolies, PTT, far from being an agent of the common good, stood for decisions made behind locked doors—an extended arm of the state in pursuit of an "aggressive information and technology policy en route to a wired society."[108] As evidence, a 1985 meeting of computer critics in Zurich listed Videotex (which would be of use to no one except banks wishing to reduce their staff); the "wiring of Selnau" (location of the Zurich stock exchange); the multiplying business line rentals (700 in 1970, 19,000 in 1982, 38,000 in 1985); and the new ERZ/B in Bern, which, it was pointed out, would cost taxpayers 37.4 million Swiss francs alone.[109] (In truth, 48 million had been put aside.)[110]

"The state," the conclusion went, "no longer [was] to invest in the public good, but in infrastructures that [would] enable an all-encompassing wave of rationalization." Already, there was a decimation of bank branch offices; peripheral regions at any rate would be left behind, inasmuch as wiring them up wasn't profitable; and soon enough, the mailman would be a thing of the past, because it would be much cheaper to send letters "via optical fiber."[111] Even though these (increasingly isolated) computer critics may have misconstrued the role of ERZ/B, Ostermundigen, in all this, such fears weren't exactly unfounded.[112] Robert Trachsel, the then director of PTT, admitted as much in 1982, when noting in a speech defiantly titled "Liberty and the State" that calls for the "re-privatization" of PTT had been growing louder, even though, as he said, PTT had technically never been

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no. 11 (1986), p. 680, p. 684; and US International Trade Commission, *Operation of the Trade Agreements Program, 37th Report 1985*, USITC Publication 1871 (1986), pp. 122–23.

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Willi Schenk, "Die Kultur einer Informationsgesellschaft. Gefahren und Hoffnungen (Tagesanzeiger)," in *Westeuropa auf dem Weg in die Informationsgesellschaft*, edited by Christian Lutz, Zurich, 1984, p. 107.

106

The 1982 PTT mission statement was widely seen as evidence of just that. See Schweizerische PTT Betriebe, *Kommunikationsleitbild*, Bern, 1982; on illegal phones, see Trachsel 1983, p. 18; and Günter Knieps, "Möglichkeiten des Wettbewerbs im schweizerischen Telekommunikationssektor," *Schweizerische Zeitschrift für Volkswirtschaft und Statistik*, no. 4 (1985), p. 411.

107

Bruce Nussbaum, *The World after Oil: The Shifting Axis of Power and Wealth,* New York, 1983, p. 12.

108

"Texte zur Computerveranstaltung im Provitreff vom 28.6.1985," 1985, p. 24, Bestand: Medien und Computer, Papiertiger Archiv, Berlin.

109

Ibid., pp. 19–23.

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"ERZ-Gebäude B. Auswertebericht," February 13, 1984, Tele 195-0003: 03, PTT Archiv.

private. (He also pointed out, apropos the "privatization of profits," that, curiously, nobody even talked about wanting to "re-privatize" the postal services.)[113] Trachsel, the engineer, then firmly came down on the side of monopoly, unsurprisingly. The detracting voices kept getting louder, however. "Innovations cannot be judged by the state, let alone generated by the state!" as economist Walter Wittmann, whom Trachsel had singled out as one particularly insistent detractor, characteristically put it.[114]

And, by and large, it's this story that has stuck, of course: the story of innovation and markets and private enterprise. Rather than, say, Trachsel's narrative, which came out in defense of publicly governed infrastructure, a less timely selling point. Or the narrative of those PTT critics who didn't care much about "innovation," but who accused this behemoth of, if not playing into the hands of the powerful, at least being an undemocratic institution, operating in a "para-political space."[115] Let alone the narrative of ordinary PTT employees who soon could be seen walking the streets of Switzerland carrying banners that said "Enough of Hayek," "Job-Killer no. 1," and the like.[116] Undoubtedly, the story that stuck, the story of innovation, contains more than a grain of truth; even when compared to the (much better paid) IBM men in their suits, the men and women of PTT can come across as a bit stiff. And yet it's a convenient construction, too: isolating, even distorting, a few variables, occluding others.

Were one to try to explain the post-industrial ruins of Ostermundigen, other forces besides innovation or the lack thereof were surely at play, as we have seen. Some of these factors may have been peculiarly Swiss (a tiny country/market, the "militia system," and so on); others, not so much (equipment manufacturers' increasingly multinational entanglements, for instance). And a few of them, arguably, were quite simply about special, rather than common, interests. Still, back in 1975, for example, the very same year that Rehmann at ERZ/W would initiate the so-called "mixed-hardware

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"Texte zur Computerveranstaltung," 1985, p. 7, pp. 19–20, p. 23.

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In fact, they could point to the fate of the British General Post Office (now British Telecom) and rather similar tendencies in West Germany, where the Bundespost—Europe's largest service provider, no less—had come under pressure as well (while pursuing a similarly "aggressive" strategy of wiring the nation).

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Trachsel 1983.

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Walter Wittmann, "Innovationen: Der strategische Faktor," in *Innovative Schweiz. Zwischen Risiko und Sicherheit*, edited by Walter Wittmann, Zurich, 1987, p. 9. When, in 1983, PTT's grandiose, expensive network digitalization project, the IFS (Integrated Fernmeldesystem) was canceled, it certainly could be construed this way, for instance: as the failure of the cozy, army-like ways of PTT and their pampered halo of manufacturers. In truth,

the situation was probably more complicated. Not only was the IFS a fairly risky (aka "innovative") undertaking, one which few private companies would have embarked on in the late 1960s; by 1983, the cancellation came at a time when PTT's project partners—local subsidies of multinational corporations, notably Siemens and ITT—essentially had marketable systems already, which then indeed were rolled out in Switzerland, too. On the IFS, see

David Gugerli, *"Nicht überblickbare Möglichkeiten". Kommunikationstechnischer Wandel als kollektiver Lernprozess, 1960–1985*, Preprints zur Kulturgeschichte der Technik 15, Zurich, 2001.

115

See, for example, Jürg Frischknecht, "Von der Medienpolitik das Amen!" *vt. Magazin für Bildschirmtext*, no. 5/6 (1985), p. 28.

116

On the banners, see Collection F_5107 (Vogler, Gertrud), SOZARCH. To be fair, the oral histories assembled, for example, at https://www.oralhistory-ptt-archiv.ch/ present a rather more complicated picture, but such initiatives do not (yet) add up to much of an alternative plotline.

group"—a pressure group consisting of various local *Rechenzentrum* players (Ciba-Geigy, Teledata, BBC, Schweizerischer Bankverein, etc.)—another kind of user group had formed in Bern: a group called asut. This group, l'Association Suisse des Télécommunications, consisted of "PTT's largest clients." And where Rehmann's "mixed-hardware group" worried about IBM's quasi-monopolistic stranglehold on their data centers, asut worried about "problems of tariff."[117] These were (too) high—in part, of course, because of PTT's aforementioned habit of cross-subsidizing loss-making "services," such as local-area telephony and public transport in remote regions, through profitable ones.[118] Needless to say, such redistributive methods were increasingly out of sync with the times, or with dreams, for that matter, of a new kind of "Switzerland ... [as a] hub of information flow."[119] Or in the words of Fulvio Caccia, the man who would have a hand in the making of the Centro Svizzero di Calcolo Scientifico in Ticino, too (see Giorgio Scherrer's contribution to this volume): "the message [of a liberated telecommunications market] would be: come to Switzerland, build your company headquarters and communications centers here, and also everything that goes along with them."[120]

Such considerations, admittedly, may seem somewhat peripheral to the history of ERZ/W, Ostermundigen, and everything that went along with it, be that TV rooms or cafeterias or HVAC systems. And yet it stands to reason that the ruins of Ostermundigen, skyscraper, subcontractors, and all, can't be really grasped otherwise. What brought PTT, this "legacy power," down, and with it such places as the Technisches Zentrum, Ostermundigen, we must assume, wasn't simply inevitable. It was the result of a complex amalgam of interests, reshaping telecommunications into "value-added services" and chipping away at what once might have been, however imperfectly, an institution devoted to the common good: *service public*. Even so, and evidently enough, there's no reason to be overly sentimental: the keypunch operators, shared toilets, the TV room ... *l'entreprise est semblable à l'armée*. Nostalgia seems misplaced. But neither does the story of "innovation" ring particularly true today.

ERZ/W was, in any case, more of a bystander in this or any such history, but clues and traces remain. Take the very name: ERZ/W, which I hadn't paid much attention to until I found, on a somewhat antiquated website, a pixelated photograph showing a group of angry protesters, circa 2001, holding up placards in front of the *Rechenzentrum*'s entrance. The "W," it turns out, stood for *Wertzeichen- und Drucksachenabteilung*—the "Stamps and Stationary Department," which occupied part of the building. In fact, the building's most expansive "machine room"—I had, somewhat naively, mistaken

117 "Protokoll der konstituierenden Sitzung der Arbeitsgruppe 'Mixed Hardware,'" September 29, 1975 (copy kindly provided by Hans Rehmann); "Schweizerische Vereinigung der Fernmelde-Benützer," *Schweizer Bauzeitung* 93, no. 14 (1975), p. 206.

118 Arguably, it was (not least) such interest groups that chipped away at policies of the common good. Indeed, it might be argued that, as far as Switzerland was concerned, *service public* was merely redefined into something more "user"-oriented (rather than society-oriented), bringing cheaper phones to all. However, the term "user" clearly is a bit deceptive, for not all users are made alike. On the latter point, see Jacob Ward, "Financing the Information Age: London Tele-City, the Legacy of IT-82, and the Selling of British Telecom," *Twentieth Century British History* 30, no. 3 (2019), pp. 424–46; and on the former: Gisela Hürlimann and Philipp Ischer, "Kontinuität im Wandel. Das Gemeinwohl als zentrale normative Instanz bei den SBB und den PTT," *Schweizerische Gesellschaft für Wirtschafts- und Sozialgeschichte* 22 (2007), pp. 229–247.

119 As were issuing by now from St. Gallen, for instance. See Stefan Zbornik, "Elektronische Märkte in der Schweiz: Die Zeit läuft ab!" in *Management Zeitschrift* 62, no. 1 (1993), pp. 89–94.

it for a space having housed punch-card equipment— had originally hosted three rotary presses, churning out (in 1967) some 10 million multicolored stamps *per day*.[121] It was, incidentally, for this reason—the "considerable monetary value" that was literally being produced there—that the newly minted ERZ/W had to be specially secured, not because of the expensive computers or valuable data. As for the protesters in the photograph: they (unsuccessfully) tried to prevent the closure of Section "W." In 2001, the production of stamps was first outsourced, as scheduled, to a private company in La Chaux-de-Fonds; it eventually was moved out of the country entirely.

Acknowledgments

Many special thanks to Sascha Deboni for his invaluable assistance in preparing this chapter.

120 Arbeitskreis Kapital und Wirtschaft, *PTT im Umbruch*, p. 8.

121 On Section "W," see *50 Jahre Wertzeichendruckerei PTT, 1930–1980*, Bern, 1980.