

**The Promise of Mobile Freedom: A Cultural and Technological History of the Portable Radio, the Walkman and the Cell Phone [“Das Versprechen mobiler Freiheit. Zur Kultur- und Technikgeschichte von Kofferradio, Walkman und Handy”]. Bielefeld 2008.**

This book adds a historical perspective to the currently discussed “wireless” or “mobile revolution” – a discussion that has been sparked by the recent and rapid diffusion of the cell phone, entailing both profound insights on a re-structuring of society as well as ample futuristic hype about a new nomadic era. At the beginning of the 21<sup>st</sup> century, consumers carry MP3 players, cell phones or palmtops, treating them as personal, intimate companions and using them “anytime, anywhere”. However, past users of portable electronics such as the portable radio or the cassette recorder have also transformed society by shaping new forms of sociability, entertainment and mobility. With the walkman, it even became normal to create a personalized sound sphere wherever one “wore” its headphones. Thus, many consumer electronics have already found their “mobile” places in our cars, pouches, or pockets and even on our bodies, way before the advent of wireless telephony.

The book focuses on the product developments and user cultures of three types of “mobile” consumer electronics, i.e. the portable radio, portable audio equipment, and mobile communication technologies. It highlights critical socio-cultural transformations induced by their widespread adoption, and demonstrates how both producers and users shaped this new strand of technology. The focus lies on (West-) Germany between 1950 and 2000 but throughout the book, U.S. American developments are referred to, since Americans were considered to be at the apex of mobility. The historical analysis draws on diverse sources, many of which are rarely considered by historians, such as consumer journals, marketing studies, popular magazines, and the artefacts themselves.

Portable, “cordless” electronics promise to “free” their owners from the many temporal, spatial and social constraints involved in the stationary use of technology, be it back home or at work. By reaching out for this “mobile freedom”, the users of portable electronics have re-shaped prevailing concepts and ideas about society and social behaviour, about technology and human identity. First of all, they have created novel patterns of mobile technology consumption and thus conferred new meanings upon “mobility”. Due to smaller sizes and comparatively low prices, portable equipment has also enforced the individualization of technology consumption, culminating in the figure of the cyborg who is constantly wired to his/her wearable accessory. Furthermore, the widespread adoption of portable electronics has questioned the underlying spatiotemporal structures of everyday life, namely the borders between public and private, work and leisure, proximity

and distance, as well as the successive ordering of activities. Portable radios, for example, were taken to work in order to lighten daily chores, just as nowadays a private SMS may be written during a boring conference. Similarly, both radio listening and mobile communication happen “in between”, in a multitasking mode. Users however have always resorted to portables, whether on the move or quite sedentarily at home. Ultimately, this has profoundly changed everyday technological culture as such, and previous differences between domestic and mobile appropriation have begun to blur. Thus, portable electronics have not simply provided a complement to stationary, “domesticated” technologies. Rather, their omnipresent usage has enhanced the technologization and mediatization of most arenas of everyday life, be it back home or elsewhere, and it has substantially changed the way we actually live.

This book has two main reflections to convey. Firstly, it de-mystifies the “mobile revolution” as a long-term evolution of new mobility patterns over the second half of the 20<sup>th</sup> century and shows that in parallel this evolution was regularly punctuated with moments of immobility, inflexibility and sedentariness.

The second important line of thought concerns users’ role in the shaping of technology. In order to apprehend it, the book introduces the so-called “user de-sign” framework that critically discerns between producers’ ideas on how their products will be used and user practices as such. While producers had envisioned most portable electronics solely as “journey companions”, it was users who gradually converted them into permanent companions of everyday live. In this process, it is particularly the young, urban generation that has left a significant imprint on the emerging mobility culture.

The following pages provide an overview of the six chapters of the book.

Chapter 1 embeds the history of portable electronics in its wider contexts.

Portable electronics were developed at the intersection of communication and transport technologies, which are rarely analysed conjointly. The introduction (chap. 1.1.) thus sets out to determine the characteristics of this kind of mobile technology by drawing on mobility and traffic studies, media studies, sociology as well as the history of technology. Portable electronics combine the potential to be used “anytime, anywhere” with an intense proximity between technology and user. I argue that, over time and triggered by widespread adoption, these features have lead to the following five highly interrelated processes:

- the *mobilization* of technology and user where mobilization refers to a growing independence from the domestic setting. This does not necessarily translate into actual physical movement and besides, it is only achieved by new dependencies on overarching infrastructures.
- the *miniaturization* of technology

- the *individualization* of its usage: Portables have become personal and have partly complemented, partly substituted former family-shared technologies. Furthermore, they serve as identity statements and are sometimes considered as a vital part of the human outfit.
- the re-definition of *spatial* social orders: Users of portables do not annihilate space, but define *new spatial realms* and create *novel overlaps* between their whereabouts and distant persons, events or virtual worlds. They mix the once mostly spatially defined dichotomies of *public* and *private*, *work* and *leisure*, *nearby* and *distant*. Beyond domestic walls or car shells, this overlapping interferes with the interaction of co-present others.
- the re-definition of *temporal* structures: Portables promise to turn “idle” time, e.g. when waiting or travelling, into precious time through the pursuit of a further activity. Over time, listening to music, phoning or texting *in parallel* (or “*while...*”) have become normal. From the inception of the cell phone age, this temporal order in which succession has turned into simultaneity has been dubbed *multitasking*.

The next subsection (Ch. 1.2.) explains why the three chosen mobile technologies (radio, portable cassette - and later digital – music and mobile communication) serve as case studies. It summarizes the questions that guide the historical analysis from Ch. 3 onwards. Ch. 1.3. provides an overview of consumer electronics in the second half of the 20<sup>th</sup> century.

Chapter 2 is entirely devoted to the underlying theoretical concept of “user de-signs” developed in a common project with Gwen Bingle. This framework is sketched in several steps, drawing on the main insights of the last one or two decades of studies in innovation theory, history of technology, material culture and consumption history. That users and technology co-construct each other, or, more generally, that society and technology mutually shape each other is well established in these fields. However, the use of everyday technologies remains rather anonymous and it is difficult to link innovation processes precisely to all the actors involved. Hence, the “user de-sign” framework represents a reaction to complexity and anonymity in the development of 20<sup>th</sup> century consumption technologies. It conceptualizes the rather featureless “mutual shaping of society and technology” as a mutual shaping between producers’ ideas on their products’ adoption, between user conceptions introduced by further actors, and actual use.

On the one hand, the term “user de-sign” points to the user configurations that are rooted in the producers’ sphere: Here, users are “designed”, be it through conscious user representations delivered by marketing research, be it by subliminal reasoning e. g. along gender lines. Such prospective user de-signs also partially materialize in the actual design of the artefact. Consumers react to such “user de-signs”, but they also create and practice

their own “user de-signs”, often by adding new values and meanings (“signs”) to the technological artefact.

The advantage of this framework is twofold: First, it emphasises users’ roles in the shaping of technology, and at the same time allows for a critical discerning between a given “co-production” by users (when producers introduce new products better suited to unforeseen user practices) and a mere configuration of prospective “users” with the help of ever more refined marketing tools. The second advantage relates to the historical source material. Whereas individual users and their practices can hardly be grasped in historical retrospect, “user de-signs” are documented in many sources, including product or warehouse catalogues, manuals, the consumer press, advertising, marketing studies, and the technological artefacts themselves. These various sources and the potential insights they provide into user de-signs are discussed in Ch. 2.2.

Ch. 3 to 5 are devoted to the empirical case studies.

Ch. 3 analyses the transformation of radio culture during the 1950s and 1960s, when the average West German household bought a portable radio as a so-called “second” or even “third” receiver after the well-established “home receiver”. On the one hand, growing sales of portable radios mirrored the increasing consumption and leisure potential of West German society. On the other, with their portables close at hand, radio listeners also transformed radio from a primary medium –collectively consumed in the family’s living room or kitchen– into a secondary medium, individually consumed in parallel with other activities in any room of the home, in the car, outside and increasingly at work.

This took place in several steps. As demonstrated in Ch. 3.1., until 1957, portable radios were seasonal offers, marketed during the warmer months as “journey companions” to be switched on while having a picnic or doing sports outside. However, those households, who could afford a portable, would also use it back home to broaden the listening radius beyond the scope of the fixed receiver. Accordingly, nearly all West German portable radios ran on both battery and mains power supplies, as it saved money to use the mains power connection whenever possible. In any case, portable radios were not used while walking around, but in a sedentary mode, be it back home or outside. And in contrast to the American market, small pocket receiver designs, more suited to individual than collective listening, did not succeed in West Germany during this era, when receivers still worked with valves.

Ch. 3.2. describes how, at the end of the 1950s, the “journey companion” was transformed into the so-called “universal receiver”. This product category proved to be the most successful radio design on the West German market. High quality receivers (with good sound quality, equipped with VHF as well as further wave bands) were designed in such a manner that they could easily be carried about back home, in the car and outside. The demand for VHF hampered transistorization. Only by 1960 was every West German

portable fully transistorized. Producers used transistors to reduce the need for battery power, but not to miniaturize the “universal receiver” design. Yet, at the beginning of the 1960s, changing radio listening practices, the new teenager consumer group, and cheap East Asian radio imports finally resulted in the success of the pocket radio. While teenagers used pocket radios as primary sets, adults considered them as a kind of “third” set for those particular situations where neither the domestic nor the universal receiver were at hand. In the end, along with technical features and media content, radio listening changed dramatically: it became entirely decoupled from its previous anchorage in domestic and family structures and, instead, integrated in individuals’ daily routines. The domestic, cabinet-like radio was substituted by a multitude of mobile, semi-mobile (automobile) and fixed receivers that offered radio programmes enabling convenient listening at any time or just in-between. Most sets had a lower sound quality than the domestic set of the 1950s, while the demand for high-fidelity listening was catered to by the hi-fi hobby (cf. Ch. 4). Even if “mobile”, many sets were designed according to a projected fixed place of installation (kitchen radios, bedroom clock radios, etc.). Thus –and in contrast with the cell phone case– it was not the terminal that turned into a personal companion, but the medium as such. Yet, one also finds abundant parallels with subsequent adoption patterns, such as a gradual spatial expansion of use –from travel to everyday situations– and an ongoing criticism of both this spatial extension into once “media free” spaces and the novel multitasking practices.

Ch. 3.3. analyzes the development of car radios. Car radios dominated the segment of non-stationary radios up to the mid-50s. More than any other design, they popularized novel habits of “mobile” listening, which at first were subject to much criticism. Indeed, drivers listened to the radio while steering the car, and this multitasking was perceived as a risky distraction. Furthermore, they experienced an augmented sense of speed due to the musical rhythms underscoring their physical movement. Over time, however, the meaning of car radios changed from risky distractors to stimulating animators, and finally, in line with the establishment of traffic channels in the beginning of the 1970s, they were considered as helpful navigation pilots enhancing traffic security. In general, mobile car music was used purposefully in order to control moods and to provide a cocooning experience while travelling.

Chapter 3.4. questions the role of miniaturization and “wearability” in the radio development of the 1950s and 60s. The main focus here is on headphones that, when replacing loudspeakers, would have enabled a substantial shrinking in terms of both size and weight. Headphones were popular among (male) radio amateurs. However, the average consumer rarely used them. Firstly, the common monaural earplug resembled a hearing aid and, indeed, many miniaturized radio components stemmed from the hearing aid industry. Secondly, there was no mass desire for private radio listening while walking around. Earplugs were substitutes that were used in rare cases, e.g. in the train when one wanted to

“listen without annoying anyone” (the slogan was “Hören ohne zu stören”), and they were stigmatised as weird prostheses.

Ch. 4 dwells on audio portables, namely the cassette recorder, the walkman and the discman, the mass of which was produced in East Asia –in contrast to the portable radio of the 1950s. As Ch. 4.1. shows, the design, development and use of the cassette recorder widely followed the pattern established by the “universal receiver”, and it soon replaced the latter in the shape of the radio cassette recorder. In the 1960s and 70s, listening to self-chosen music entailed two distinct modes of listening: mobile listening was based on cassette portables, most of which also included receivers and a recording function for occasional sound hunting. In contrast, so-called “serious” listening was pursued back home with stationary hi-fi equipment, records and, increasingly, headphones. At the end of the 1970s, many producers offered a multitude of portable audio sets, from the tiny pocket recorder up to the portable hi-fi unit. But it was left to the Japanese company Sony to interweave the antipodal listening cultures of hi-fi listening and mobile listening with their wearable stereo-headphone cassette player –later dubbed *Walkman*. The resulting listening experience can best be compared to the listening experience in a car: the transit space is reduced to a visual perception underlain with self-chosen music.

Many West German adults and also industry representatives deemed the public wearing of headphones as awkward or even socially offending, even though in the past (domestic) headphones had been marketed as tools “to listen without annoying others”. Teenagers however were enthusiastic about privately listening to their music anywhere. While the design of walkmans hardly changed over time, their meaning changed completely in West German society over the course of a single decade. This is discussed in Ch. 4.2. and 4.3. For a number of reasons –among them a widely shared concern about growing individualism, consumption and electronically spent leisure time, the walkman became a main target for youth and cultural criticism in the early 1980s. It was only in the second half of the 1980s and thus at a time when individuality and mobility had gained increasing importance in everyday life, that the walkman was used by the average West German adult, while American contemporaries had immediately appropriated this audio technology. Mobile headphone usage was finally valued as a means to carve out some privacy wherever needed, be it in the subway, on the airplane or while jogging. While West German adults had defined private headphone listening as an anti-social nuisance, since the listener shut him-/herself off from co-present others, their American counterparts did so for the public usage of stereo radio recorders, since co-present others were forced to listen to the loud music. More importantly, among white Americans and in an era characterized by serious racial conflicts, the boombox acquired a negative image, since it provided the technological basis for the emergence of the politically explosive hip-hop culture in African-American ghettos. Ch. 4.4. analyzes the differences between the West German and

the American appropriation of both walkman and boombox more closely and, additionally, concludes with more general remarks on the 1980s cassette culture.

Ch. 5 deals with the history of mobile telecommunication. While its roots lay in the early 20<sup>th</sup> century, it only took off at its end, after so-called “cellular technology” had de-linked the immediate relation between frequency number and user capacity in the case of mobile telephony. Mobile communication (“Mobilfunk”) however comprised further –and rather differentiated– technologies. In the 2<sup>nd</sup> half of the 20<sup>th</sup> century, it included firstly, mobile voice telephony, which was restricted to car-bound “automobile” telephony in West Germany up to 1988, secondly radio paging, and thirdly, voice radio, among it citizen’s band. When cordless phones became available on the West German market in the mid-80s, they were also subsumed under this header. The development of mobile communication substantially differs in the U.S. and in (West) Germany due to different state and economic regulations. Besides, Scandinavian and later on Asian countries have to be taken into account to complete the picture.

Ch. 5.1. describes early car-based telephony (analogue non-cellular and cellular, 1950s to 1980s) and the adoption of the citizen’s band which was de-allocated by the “Bundespost” (the West German PTT) in 1975. Ch. 5.2. concentrates on pagers and the so-called “telepoint” system. Telepoint arose in the years around 1990 as a “cheap mobile for the poor” to be used in predefined urban “hotspots” such as pedestrian zones or train stations. In stark contrast to cellular technology, both of these mobile telecommunication technologies had the potential to cater to a large number of users in a cost-efficient way. However, neither of them succeeded on the German market, which at that time was really lagging behind developments in other countries. Apart from work settings, West Germans thus initially experienced “wireless” telecommunication with cordless phones in the domestic realm. As the end of this chapter shows, this “cordlessness” translated into new practices of domestic phoning.

Ch. 5.3. describes the development of mobile, GSM-based telecommunication from the beginning of GSM plans in 1982 up to its widespread usage around 2000. As a so-called 2<sup>nd</sup> generation (digital) cellular standard, GSM was a European endeavour of the 1980s to unify the many cellular standards that just had been established in the different European countries. Besides, with GSM, the telecommunication markets – at the time state-controlled monopolies in most of the countries – were to be de-regulated so that Europe could become competitive in the increasingly important ICT field. The chapter starts with the analysis of GSM planers’ user conceptions and their marketing estimates. Then, it describes the role that handsets –referred to as handhelds, pocket phones or “pedestrian phones”, since they were used by people walking around– had both in planned and existent networks. While the evolving “PCN” (Personal Communications Networks) system was fuelled by the vision that the mass consumer should carry a pocket phone, GSM was

initially designed to provide mobile professionals with a European-wide, sophisticated means of wireless communication.

Once introduced in 1992, GSM telephony developed in a totally unforeseen way. In Germany, with four networks operating at the end of the 1990s, the GSM handheld diffused more rapidly to the mass consumer than any other technology. Until 1994, GSM had been marketed as a business tool. Service charges were among the highest in the world, and the cell phone was regarded as an annoying accessory sported by braggy yuppies. Once mass marketing methods had been adopted (bundling of terminal and contract; tariffing; prepaid cards), consumers shaped the mobile into a beloved companion enabling constant connectivity with family and friends, even if initially they had purchased it with only emergency calls in mind. Furthermore, cell phones were used as watch, calendar or address book substitutes and, more recently, as Game Boys or cameras. With respect to asynchronous communication, it became normal to use mailboxes, a practice previously considered as antisocial and impolite in West Germany, as well as to text-message. Since texting meanwhile figures as a prominent example of user-driven innovations, an entire subchapter is then devoted to its development. It shows that planners originally had had many use conceptions in mind when they included this pager-like function into GSM. One example was text-based cell broadcasting or providing information-on-demand similar to teletext. Yet nobody could imagine the enthusiasm with which in particular young users, but also later adult holidaymakers in Spain or other “GSM countries”, typed 160 characters on tiny keypads to send messages to friends or family back home. However, service providers were fast on the uptake when it came to commercializing this cult-practice. It was the under-complex – and overpriced – SMS, and not the overhyped data services, that made a substantial contribution to their returns.

As in the previous case studies, the chapter ends with an analysis of how mobile technology changed the respective technological culture as well as the wider spatiotemporal structures and social norms of everyday life affected by it. People nowadays call more often, they call in-between or in parallel with other activities, be it bathing or shopping. They have created what has recently been dubbed “micro-coordination”: spontaneous appointments and momentary adjustments have replaced fixed long-term agreements. Linked to this phenomenon, societies have had to renegotiate in which public situations private calls are admissible, annoying or altogether rude.

The summary in Ch. 6 is articulated in two steps. First, it provides a re-evaluation of the theoretical “user de-sign” model, by taking into account the insights of the empirical case studies. Neither the transistor nor digital cellular radio dictated a new kind of “mobility” and the ensuing technological change. Instead, it was “user de-signs” on both the producer and user sides that determined the course of technological development. For historians of technology, this means that we have to study more closely the mediation and power

relations between producers and users, particularly in the cases where producers have turned into global players who develop and produce far away from the places of consumption. Moreover, marketing should be taken into consideration as a new agent in the history of technology.

The second part of Ch. 6 summarizes the analytical insights of the previous chapters by evaluating the processes of *mobilization*, *miniaturization*, *individualization* and the re-definition of *spatiotemporal* orders for audio consumption and telecommunication. It points out to parallels as well as differences. Furthermore, the history of portable electronics is used to discuss more broadly the mobility culture that has been emerging towards the end of the 20<sup>th</sup> century. In this culture, the mobile phone has, it seems, replaced the car – a private mobile place in which many portables were initially tested – as the dominant icon of mobility, freedom, and individual autonomy. Besides, “being mobile” does not necessarily imply physical movement, which is taken for granted. While “mobility” during the 1<sup>st</sup> half of the 20<sup>th</sup> century meant moving through space and doing so fast, at the end of that century, it referred to a culture of “anytime, anywhere” commitment, based on an interlacing, and sometimes a self-determined bricolage, of social and spatial relations. Ultimately however, this “anytime, anywhere” culture is characterized by both high autonomy and flexibility as well as an increased immobility and domesticity when actually on the move. Indeed, portable electronics function as snail-shells with which one can carry along one’s values, routines and personal sphere wherever one goes. They thus help one to minimize the burdens, insecurities and novelties inherent in travelling by enabling a new kind of mobile techno-cocooning.