”A Step into the Computer Era” – A Comparative Study on Early Home Computing in the United Kingdom, the Netherlands, and Finland

digital culture, home computers, microcomputers, videogames, history of computing, computer magazines, programming, educational computing

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How to cite: Reunanen, Markku, Guus Hoeberechts & Tytti Viljanen. 2024. ”’A Step into the Computer Era’ – A Comparative Study on Early Home Computing in the United Kingdom, the Netherlands, and Finland”. *WiderScreen Ajankohtaist*a 26.9.2024. http://widerscreen.fi/numerot/ajankohtaista/a-step-into-the-computer-era--a-comparative-study-on-early-home-computing-in-the-united-kingdom-the-netherlands-and-finland/

This paper examines how early home computers were portrayed to domestic audiences in the UK, the Netherlands, and Finland. The first half of the 1980s saw rapid growth in the productization of these devices and their market. But how was the consumer convinced to buy a product they virtually did not have a need for? This comparative study aims to answer this question by analyzing advertising material for home computers from the late 1970s to mid-1980s. Madeleine Akrich’s two

concepts, projected user and script, serve as the theoretical backbone of the discussion. The results show that, despite the three countries having vastly different domestic markets, the themes that emerge from the advertisements are consistent across them. Companies made grand promises concerning the possibilities and influence of new technology, but in hindsight many of them never realized. A fear of being left behind marked both the industries and the advertisements. On a more positive note, consumers were urged to enhance their own abilities, make their daily tasks easier, and provide a robust future for their children – to-be members of the information society.

Introduction

The development of microprocessor technology in the 1970s facilitated the creation of new kinds of consumer electronics, such as pocket calculators, video game consoles, and home computers. The first computers aimed for the domestic market were kits that required considerable skills with electronics, as you had to assemble them yourself, but toward the 1980s the kits were increasingly productized into affordable and accessible home computers aimed for the general public instead of just enthusiasts (Haddon 1988). The first half of the 1980s saw rapid growth of the market, which has at times been referred to as 'the home computer boom'. A great number of companies tried to capitalize on the boom, but for quite some time the machines seemed like an answer without a question: what could consumers actually *do* with them?

Similar, interrelated events took place all around the industrialized world. The US has always had an important role in the development of computing – including home computers – and Japanese consumer electronic giants were actively following the birth of a new, possibly lucrative market. The importance of microcomputers was, likewise, recognized in Europe, where local companies started their respective projects early on. In this study, we discuss the developments of three European countries: the United Kingdom, the Netherlands, and Finland. The reason for choosing these three in particular is that their influence, domestic market, and computer industry were notably different from each other. At the same time, they were all European market economies, which facilitates fine-grained comparison and juxtaposition, as opposed to more radical differences that a selection of three completely distinct countries would provide. A practical factor was the access to source material in a familiar language, so that important nuances would not be lost in translation (cf. Schlombs 2006). To distill the essence of the study into a research question: *How*

were early home computers portrayed to domestic consumers in the UK, the Netherlands, and Finland?

Local histories of computing is an umbrella term for computer history studies that take into account various local factors, such as social, cultural, political, and economic conditions. These studies have often focused on individual countries (e.g. Garda 2020; Saarikoski 2004a; Swalwell 2012; Švelch 2023), even though a more fine-grained approach could provide a more diverse picture and bring forth, for example, regional particularities (cf. Swalwell 2021). In that vein, Jaroslav Švelch (2021) proposes the term *hyperlocal games* when referring to games that are about a certain existing place and its inhabitants. So far, the possibilities of comparative history have seldom been explored in the case of computing – such an approach could be labeled *comparative local histories of computing* (cf. Schlombs 2006; Welskopp 2010). Jørgensen, Sandqvist and Sotamaa's (2017) article *From Hobbyists to Entrepreneurs: On the Formation of the Nordic Game Industry* is a clear example of such, as they make comparisons between three Nordic countries – Finland, Sweden, and Norway – to highlight their differences and similarities (see also Kerr 2012).

In the analysis, we apply Madeleine Akrich's (1992) concepts as presented in *The De-Scription of Technical Objects*. A *projected user* refers to designers' expectations of their target audience: who would use the product and what kind of skills, needs, motivations, and tastes they have. A *script*, embedded in the product and everything that goes with it, follows from these expectations and refers to how the designers envisioned the use. Far from neutral, scripts come with particular norms, morals, and presumptions that do not necessarily match those of the actual audience. Originating from and extending the actor-network theory, Akrich's study also takes into account how multiple diverse actants, both human and technological, and their relationships are involved in the process. (Akrich 1992; cf. Bardini & Horvath 1995.) The concepts of projected user and script are well-applicable here, as we are not dealing with actual experiences of computer use, but rather the moment a user is introduced to new technology. Similar topics have been discussed in other fields of study, such as user-centered design (e.g. Carroll 1999; Norman 1986), so they are by no means unique to Akrich only.

Computer brochures and advertisements from the UK, the Netherlands, and Finland serve as the main research material for this study (cf. Kirkpatrick 2016; Suominen & Pasanen 2020). We chose material with advertising text and imagery in order to reveal the script of the home computer; plain price lists would not serve the purpose as well. Likewise, television commercials tend to be

short and undetailed, so they were not considered either. One goal was to include diverse computer models and manufacturers, as well as to provide even temporal coverage from the late 1970s to the mid-1980s, when home computers were still new. The selected brochures and advertisements were subjected to a close reading which included both their text and imagery, after which we collected the observations and grouped them into larger recurring themes (e.g. Brummett 2009). Each researcher covered only one country, but the results were validated by two others to improve reliability and facilitate comparisons. After the initial batch of 20 examples for each country, it became clear that the observations started repeating so consistently that there was no need to collect more material. It should be noted that there was a certain overlap between the countries, since not all the content was locally created, which was not considered a problem as the advertisements represented what contemporary audiences saw, no matter the origin.

The following three sections discuss home computing in the three countries on a general level, mostly based on existing research literature. In addition, we provide further details on the research material for each country, such as the machines and magazines covered by the study. It is natural to start with the UK, as that discussion lays a foundation for the following two, owing to the strong British presence on the European market. Next follows the Netherlands, as it stands somewhere between the other two in size and influence. Finland, the smallest in population and most dependent on foreign imports, is presented last. Next, we discuss the themes that close reading brought up on how computers were presented to a new, largely uninitiated audience. Finally, the conclusion provides reflection on the outcomes, merits, and limitations of the study, as well as thoughts about directions for further research.

The United Kingdom – A European Hotbed

When compared to the Netherlands and Finland, almost everything about the British home computer industry appears big, a different order of magnitude. With a population of about 56 million over the 1980s, the domestic market alone was considerable and facilitated the creation of a number of British computer models, an influential game industry, and a flourishing press with publications aimed at general enthusiasts, gamers, and the owners of particular computer models. In addition to the UK, the effects were felt in several other European countries where British products found their way and became part of local commercial and hobbyist activities.

Leslie Haddon is among the first scholars who started studying the home computer phenomenon. His foundational article, *The Home Computer: The Making of a Consumer Electronic*, was written in 1988 when the phenomenon was still ongoing. Haddon (1988) details the American origins of the home computer and compares the Commodore 64 to its British rivals – different Sinclair computers – and notes how the optimistic visions of a multi-purpose computer were largely replaced by the reality of using it for gaming only. Murdock, Hartmann and Gray's (1992) longitudinal study on domestic media use is another important early take on the subject, where they critically analyze the practices involved in home computing. Later on, several other researchers have contributed to the discussions on different related topics, such as British computer models, educational use, and videogames (e.g. Gazzard 2016; Kirkpatrick 2016; Lean 2014; 2016; Selwyn 2002; Wade 2016).

The election of a conservative government with its prominent prime minister Margaret Thatcher is an important backdrop for computing in the UK; Thatcher's reign lasted from 1979 to 1990, which effectively matches the definitive years of home computers. At the beginning of a period colored by diminishing union power, unequal distribution of wealth, and declining heavy industry, the computer did not necessarily appear as a liberator, but rather another threat to future jobs (see McSmith 2011; Wade 2016, 37–40). The already long ongoing decline manifested itself as unemployment and large-scale miners' strikes (McSmith 2011, 152–170). The inevitable shift toward a postindustrial society coincided with the rise of microcomputing, which led to the concern that Britain was going to fall behind unless it started actively developing its own computer industry (e.g. Gazzard 2016, 1–9).

The British Broadcasting Company (BBC) was a visible proponent of information technology, raising awareness, providing a platform for public discourse, and setting up initiatives to support computer education. The *Computer Literacy Project* of the early 1980s was a major push, which consisted of educational activities, television and radio programs, and printed publications (Gazzard 2016, 10). Similar initiatives were underway in other European countries, but where the BBC's project stood out was the introduction of a complete computer, the BBC Micro, that was built for educational purposes from the ground up. After drafting the initial specification list, BBC representatives requested quotes from seven manufacturers, out of whom Acorn eventually got the deal (Gazzard 2016, 21–24). BBC's well-known brand, coupled with the governmental *Micros in Schools* program, which subsidized the purchase of the computer, gave Acorn a stronghold in the

British educational market (Gazzard 2016, 72). As the BBC Micro was considerably expensive compared to its competitors, Acorn later introduced the cut-down Electron for the home market.

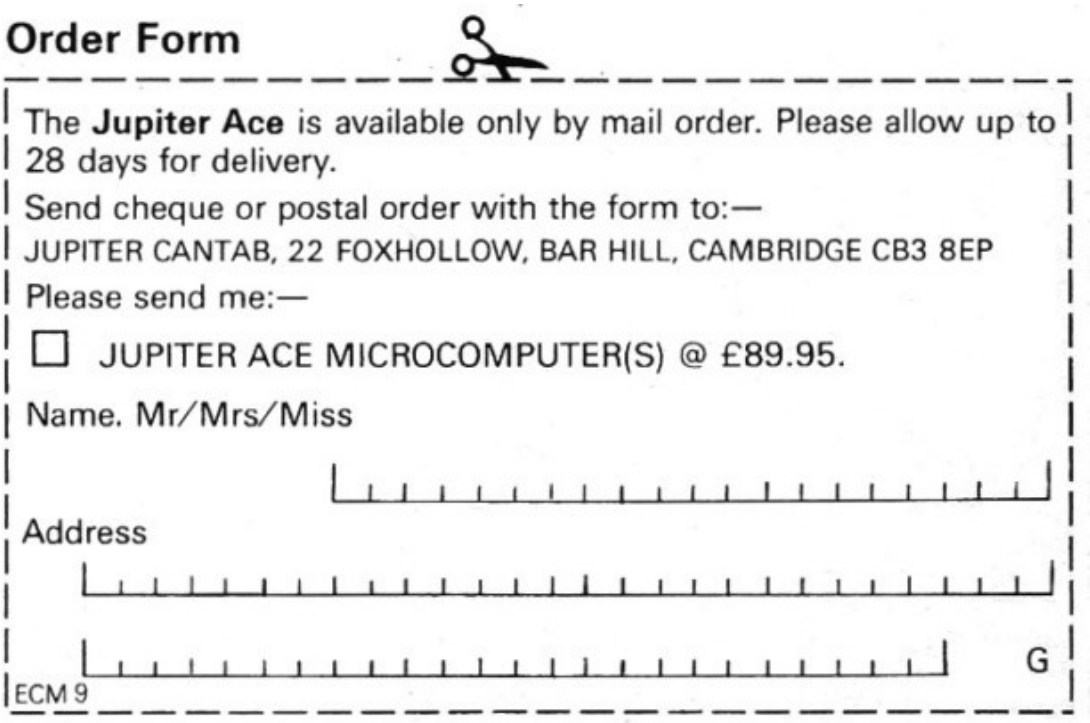
In addition to Acorn, several other British companies attempted to join the competition. Among the less successful ones were Camputers, Dragon Data, Grundy, Jupiter Cantab, Nascom, and Tangerine/Oric, most of whom gave up their attempts by the mid-1980s after commercial failure. Among the winners were Sinclair, in particular their ZX Spectrum models, and Amstrad with their CPC series. Sir Clive Sinclair, knighted for his services to the computer industry, became a figurehead of the new trade and a celebrity whose fame spread far beyond Britain. *Sinclair and the 'Sunrise' Technology* by Ian Adamson and Richard Kennedy (1986) is a critical contemporary take on the success story, where they reveal several recurring problems of Sinclair's ventures, such as quality issues, design flaws, and delays, that plagued almost all the products. The Sinclair QL from 1984 was an unsuccessful attempt to enter the so-called 16-bit era, after which the computer business was sold to Amstrad (see also Thomas 1990). Interestingly, the ZX Spectrum had a notable afterlife in the Soviet Bloc where it became the platform of choice for various local hobbyist communities (Stachniak 2015; Švelch 2023).

Even though British home computers failed to survive beyond the 1980s, they facilitated the creation of a thriving game industry that still lives on (Kerr 2012). Anyone who played on the popular home computers of the time was almost sure to come across British games. In addition to official distribution channels, they also moved across borders as pirate copies (e.g. Wasiak 2012). Companies from Ocean to Mastertronic and Graftgold were household names of the time, as well as the pioneering game designers and developers, such as David Braben, Andrew Braybrook, Geoff Crammond, Jeff Minter, and Jon Ritman. The spectrum ranged from the largest publishers in Europe to aspiring bedroom programmers who sold their creations directly through mail order (see Anderson & Levene 2012, 71–104; Wade 2016).

When considering the transnational connections between the UK, the Netherlands, and Finland, it is evident how one-sided the relationships were: several British home computers were sold in the other two countries (though they never managed to become market leaders in either), along with peripheral devices, games, and books. The development of the British computer market – which was considered a forerunner and an indicator of how things would develop elsewhere – was followed keenly and reported by local magazines. At the same time, the UK itself was a notable target market for American companies, most notably Commodore, and, to a lesser extent,

Japanese consumer electronics giants for whom the home computer was just one item in their extensive product portfolios.

British material used in this study consists mostly of advertisements found in prominent computer magazines: *Personal Computer News*, *Personal Computer World*, *Practical Computing*, *The Sunday Telegraph*, *Your Computer*, and a Commodore 64 brochure. The machines covered by the material are the Acorn Atom and Electron, Amstrad CPC 6128, Apple II, Atari 800, Camputers Lynx, Commodore VIC-20 and 64, Goldstar MSX, Jupiter Ace, Mattel Aquarius, Oric-1 and Atmos, Sinclair ZX80, ZX81, ZX Spectrum and QL, Spectravideo 318 and 328, and TI-99/4A. Almost all of them represent British or American home computers, whereas Goldstar was Korean – most other MSX compatibles sold at the time were of Japanese origin.


Order Form

The **Jupiter Ace** is available only by mail order. Please allow up to 28 days for delivery.
Send cheque or postal order with the form to:—
JUPITER CANTAB, 22 FOXHOLLOW, BAR HILL, CAMBRIDGE CB3 8EP
Please send me:—
☐ JUPITER ACE MICROCOMPUTER(S) @ £89.95.
Name. Mr/Mrs/Miss
Address
G
ECM 9

Figure 1. Jupiter Ace mail order form (Your Computer 9/1982). British home computer companies were heavily concentrated in Cambridge. For instance, Acorn, Camputers, Jupiter Cantab, Sinclair Research, and Tangerine were located in the region.

In comparison to the other two countries, there are two notable specialties not present elsewhere. Firstly, it was possible to mail order home computers directly from the manufacturers. At least Acorn, Jupiter, Oric, and Sinclair computers were available for purchase this way, which highlights how local their production was (cf. Anderson & Levene 2012, 71–104; Figure 1). The mail order option seems to have disappeared toward the mid-1980s, hinting at changes in the distribution

networks, although it was still possible to send a coupon to receive marketing material. Secondly, the wordy constitution of early British computer advertisements stands out: there was often plenty of small text detailing everything about the machine in question. In contrast, American companies, such as Commodore and Texas Instruments, favored a less detailed approach and tended to focus on the main selling points when advertising their products in the same magazines.

The Netherlands – Domestically Viable

Compared to the United Kingdom, the Netherlands did not have a particularly prominent home computer industry, barring a few international ventures. With a population of 14 million – sitting somewhere between the UK and Finland – the market was not small, but the adoption of computers in households stagnated around thirty percent for most of the 1980s (CBS 2010). The hobbyist community, however, was thriving and facilitated a large part of the Dutch computer revolution, with tens of magazines about general computing, specific brands or models, and software. Most home computers on the Dutch market were imported from the US, the UK, or Japan, but three Dutch companies managed to gain some domestic prosperity: MCP (later Aster), Compudata (later Tulip), and Philips (Veraart 2008a, 187, 230). Philips, founded in 1891 and by the 1980s a multinational, also found international success with their hardware, though not so much with their home computers as with, for example, their displays, cassette recorders, game consoles, and a range of mainframe systems and minicomputers (Lenting 2019, 11–12; see also Danielson and Läppinen 2023, 75–141).

Research on the Dutch history of home computers has chiefly been conducted by Frank Veraart, starting with his PhD dissertation *Vormgevers van Persoonlijk Computergebruik* (Designers of Personal Computer Use) (2008a). *Vormgevers* is a comprehensive text about the four phases of development in home and personal computers from 1970 to 1990, in which Veraart emphasizes the role of intermediary actors in shaping the position of the computer in Dutch society. Additional fundamental research has been conducted on the history of computing in the Netherlands and the information society as a whole, among which belong the following: *De Opkomst van de Informatietechnologie in Nederland* (The Rise of Information Technology in the Netherlands) (van Oost et al. 1998), *De Eeuw van de Computer* (The Century of the Computer) (van den Bogaard 2008), and others (e.g. Albert de la Bruhèze & Oldenziel 2009; Alberts & van Vlijmen 2017; van

Eeden 2002; Titulaer 1988). Just five years ago, Tom Lenting (2019) published the first book focused on the history of the Dutch game industry.

In the late 1970s and early 1980s, the Netherlands, much like the UK and other Western countries, was in the midst of an economic crisis, after the two oil crises and a slew of conservative governments. This time is, thus, characterized by recession, high rates of unemployment, and distrust in the country's leaders (Veraart 2008a, 95–96; 2014). This contextualizes the Dutch adoption of home computers in the 1980s. Like in the UK, the Dutch public and labor unions were worried the integration of computers would lead to even higher rates of unemployment (Veraart 2008a, 101–105). However, the government recognized that the new technology would play an important role in the near future. Therefore, they funded research in 1979, led by G.W. Rathenau, director of Philips Research, into microelectronics and their consequences on the Dutch economy, education, and socio-cultural environment (Veraart 2008a, 97; 2008b).

The Rathenau report urged the government to keep up with these developments, so as to not fall behind on big actors like the United States and United Kingdom (Veraart 2014). The report stated that focusing on hardware was unnecessary, as it was near impossible to compete with the hegemony of other countries, mainly the US. However, it continued, the Netherlands should responsibly leverage the international position of Philips, at that time the world's third biggest producer of integrated circuits. Taking the report into consideration, at the turn of the decade the government officially ushered in the information society (see Figure 2) and worked on developing policies to integrate the microelectronic revolution into daily life. (Veraart 2008a, 95–122; 2008c.)

Figure 2. Advertisements also embraced the idea of a new era (Algemeen Dagblad, April 19 1984): "If you want to step into the computer era, then take a step in the right direction."

Hobbyists had already started developing their own approaches to this revolution several years prior, which would help shape the script (Akrich 1992) of the home computer in the years to come (Veraart 2008a, 143–172; 2014). The Dutch hobby culture was alive and well, and quicker to actively take an interest in microelectronics than the government. In 1977, hobbyists had started setting up computer clubs. The general-purpose Hobby Computer Club (HCC), which was modeled after the British Amateur Computer Club (1973), would quickly grow to be the largest computer club in the Netherlands (Veraart 2008c). By 1992, it was Europe's largest consumer organization for computing (Veraart 2014).

The first computer stores also started popping up in 1977, offering workshops and seminars next to hardware and kits. In 1978, the Television Academy (TELEAC) produced a televised course called *Microprocessors*, focused mainly on hardware and processing, which amassed over 12,000 participants (Veraart 2008a, 111–113; 2008d). Due to its popularity, the following year TELEAC offered *Microprocessors 2*, which focused on programming in BASIC. This switch in topic

exemplifies Dutch hobbyists' evolution of interests from building computer kits to programming and ultimately to operating ready-to-use software. (Veraart 2008b; 2008d; 2011; 2014.)

Hobbyists, driven by their personal interests, helped push the computer from the home into other aspects of life. Hobbyist teachers, for example, brought their computers into schools and urged the educational board to invest in microcomputers as early as 1979 (Veraart 2008d). Catching up in 1982, the government introduced the *100 School-project*. They commissioned Philips and MCP to supply 880 computers for a hundred secondary schools. 750 schools applied to get these microcomputers delivered to their classrooms. Of the over 600 schools that did not get selected, many would find ways to supply their own computers, supported by local banks, computer businesses, private investments, and the hobbyists (Veraart 2008d; 2014).

As in several other countries, Commodore was the most popular brand of home computers on the Dutch market. In the early stages of the home computer era, the PET 2001 was the leading model, alongside the Tandy TRS-80, Exidy Sorcerer, and Apple II (Veraart 2008a, 84). In 1984, Philips started producing MSX compatible computers, explaining the popularity of this platform, which experienced only limited success in a few other countries, in the Netherlands (Lenting 2019, 15–6; see also *MSX Computing* 4–5/1986). Together with the Commodore 64, MSX computers held the top spot for home computers in the Netherlands.

The Dutch game industry was highly influenced by the characterization of home computers as educational technology. The two software companies that found viable domestic success with their game production were Aackosoft (founded 1983) and Radarsoft (founded 1984). Among their works was a range of educational or so-called *serious games* for the Commodore 64 and MSX. These were linked to Philips and V&D, a leading department store, whose projected user profiles fit these objectives (Veraart 2014). This inclination towards schooling still exists in the Dutch game industry today (Lenting 2019). Despite the domestic game industry not being very big, Dutch consumers mostly cited gaming as one of the main applications for their computer in the early 1980s. This created a widespread hacker culture, wherein hobbyists desired acclaim for their extensive software collections (Veraart 2011; see also Wasiak 2012).

The few Dutch home computers that were developed did not venture far internationally. Considering the transnational connections pertaining to this study, no evidence of Dutch home computers was found in the UK, where they were not able to compete with British and American

products, but Philips displays and cassette recorders did manage to cross the Channel (e.g. *Personal Computer World,* December 1984; *What MSX?* 4/1985; see also *Printti* 6/1986). Some Philips displays and MSX models could be unearthed in Finland, as well as translated MSX guidebooks (*Printti* 1/1984). However, Dutch innovators do pride themselves on a few notable developments that made slight ripples in the world of computing. One such development is *Basicode*, which elaborated on British and American innovations to translate common BASIC code across platforms, and was taken up by the BBC to transmit software over the radio, as well as broadcasters in Belgium, Denmark, Australia, and East Germany (Veraart 2008a, 160–167; 2014).

The Dutch material used for this study was compiled from the computer magazines *Elektuur* and *MSX Info*, the daily newspapers *Algemeen Dagblad* and *NRC Handelsblad*, and several Dutch language brochures. The machines covered by this selection are the Acorn Electron, Altos Personal Disk, Apple II, Commodore 128 and 64, ITT 2020, Netronics ELF II, Philips P2000T and MSX models, RCA Cosmac SUPER ELF, Sinclair ZX80, ZX Spectrum and ZX Spectrum+, Sony HitBit 55P and 75P, and TI-99/4A. A large amount of advertisements can be found that were part of the V&D marketing campaign that promoted computers as educational, with their slogan 'Spelenderwijs wijzer' – wiser through play.

Finland – Small and Dependent

Finland, with a population of less than 5 million people in the 1980s, was clearly the smallest market of the three countries. As opposed to the other two countries, the decade was a time of steady economic growth and increasing consumerism, and the Nordic welfare state was doing well (e.g. Heinonen 2000; see also Pantzar 2000). Finland exported machinery, ships and boats, wood and, as one of the prime products, paper (Central Statistical Office of Finland 1990). Interest in information technology had been on the rise for decades, and public debate on the subject was often optimistic in tone (Saarikoski 2004a, 40–42; Saarikoski & Reunanen 2014; Suominen 2003). Universities had been teaching computing since the 1960s, companies and governmental institutions were already using computers for a number of tasks, but the mainstreaming for home use had not yet taken place (Paakki 2014; Suominen 2003, 117–178).

The number of academic publications dealing with Finnish home computer history is notably high, even when disregarding the small population. A large part of this work has been conducted by researchers affiliated with the University of Turku. Petri Saarikoski's *Koneen lumo* (Lure of the

Machine) from 2004 is a cornerstone of these studies, in which Finnish home computing is discussed from several perspectives. A complete overview of all related publications by Finnish scholars cannot be listed here, but some examples of the covered topics include software piracy (Saarikoski 2022), history of the game industry (Pasanen & Suominen 2019; Saarikoski & Suominen 2009), and hobbyist programming (Saarikoski 2004b; Suominen & Pasanen 2020). In the same vein, the field of game studies is well developed in Finland (Sotamaa 2024).

The early 1980s was the time when computers started actively arriving in Finnish households; in 1984 and 1985 approximately 100,000 units were sold per year (Saarikoski & Reunanen 2014). Considering how peripheral the market was, there was a great variety of different home computers available for purchase. For instance, an overview published in *Printti* issue 10/1985 listed 33 different models, many of which never managed to achieve any notable commercial success. The US and UK were the most common countries of origin for the mentioned computers, but various Japanese MSX compatibles were also available in Finland, as well as the Sharp MZ series and the short-lived Sega SC-3000. While the Commodore 64 was clearly the most popular model, with a market share of about 70% in 1985, thousands of Sinclair ZX Spectrums and Spectravideo 728s were sold as well (Saarikoski & Reunanen 2014).

Even though most computers, peripherals and software were imported from abroad, there were also Finnish attempts at capitalizing on the home computer boom. The Telmac 1800, designed by Osmo Kainulainen in 1977, was among the first hobbyist-oriented kit computers available for purchase (Saarikoski 2004a, 60–61). The later Telmac TMC-600 from 1982 was already much further productized with its standard case and keyboard. Salora, known to consumers for its radios, televisions, and hifi sets, had two models released under their name, the Fellow and the Manager (Figure 3), although both of them were rebranded VTech Laser machines originating from Hong Kong (Saarikoski 2001). The least genuine ‘Finnish’ home computer was the Finlux Dragon, which was effectively a normal British Dragon with a different sticker (e.g. *Printti* 10/1985).

Figure 3. The Salora Manager advertisement promised clear instructions in Finnish. Note the Finnish/Swedish ö, ä, and å keys on the keyboard (Printti 1/1984).

Toward the 1980s, the first computer clubs were founded around the country. They played an important role in building enthusiast networks and sharing information, which was still scarce and often hard to access at the time. (Saarikoski 2004a, 67–73.) Finnish technology magazines started covering home computers around the same time, and their microcomputer appendices eventually grew into full-fledged publications by 1984, when the first issues of both *MikroBitti* and *Printti* came out (Saarikoski 2004a, 108–110). In addition, various importers, resellers, and clubs had their own small-scale magazines that served their respective needs.

Today, Finnish game brands from *Angry Birds* to *Alan Wake* are recognizable all around the game-playing world, but in the 1980s the situation was completely different. The first game studios were

founded only in the 1990s, although some companies did publish titles made by individual programmers earlier (Pasanen & Suominen 2019; Reunanen, Heinonen & Pärssinen 2013; Suominen & Saarikoski 2009). The first known Finnish commercial computer game, Raimo Suonio's chess version *Chesmac* from 1979, is an early curiosity both because of its age and its target platform, the Telmac 1800 (Reunanen & Pärssinen 2014). In the absence of a domestic industry, aspiring developers contacted British publishers to get their games out to the international market. Stavros Fasoulas (*Sanxion, Delta, Quedex*, and *Galactic)* and Jukka Tapanimäki (*Octapolis, Netherworld*, and *Moonfall*) managed to do exactly that, which serves as an example of a rare transnational connection from Finland to abroad (Saarikoski 2004a, 266–269).

Our Finnish research material consists of advertisements from the following popular technology and computer magazines (1981–1985): *HiFi*, *MikroBitti*, *Printti, Prosessori*, and *Tekniikan Maailma* (World of Technology). Additionally, Top Data's brochure from 1979 was included in the selection to cover the late 1970s. The *Tietokone* (Computer) magazine would have been another relevant source, but it was omitted here because of its largely professional orientation, and because the twenty chosen advertisements already opened up a characteristically Finnish view into the portrayal of the home computer. The computers that appeared in the advertisements were the Amstrad CPC 464, Casio FX-750 and Kulkija ('Traveler', rebranded FP-200), Commodore VIC-20 and 64, MicroBee, Oric Atmos, Salora Fellow and Manager, Sega SC-3000, Sharp MZ-700, Sinclair ZX81, ZX Spectrum and Spectrum+, Spectravideo 328 and 728, and Telmac 1800.

Figure 4. An advertisement for the Casio Kulkija (FP-200) portable computer held by a wandering monk (Tekniikan Maailma 8/1984).

The majority of software, manuals, and other documentation was in English, which posed a certain barrier in Finland at the time. Therefore, a common marketing trend was to highlight anything that was available in Finnish. One main selling point was the Scandinavian keyboard, including the three letters needed for both Finnish and Swedish: å, ä, and ö (Figure 3). A MicroBee advertisement in *Printti* 1/1984 also mentioned the ability to use the Cyrillic alphabet, which is an interesting link to the country's geographical location and ties to the Soviet Union. Another national specialty was that a complete, often long list of dealers was shown in advertisements, underlining good availability and nearby support. As the last distinctively Finnish curiosity, there was a mention of how the computer was functional even when you are in the middle of nowhere – a realistic situation in the sparsely populated country: "The Casio Kulkija is battery- and mains-powered, so it

works anywhere regardless of electricity, even in the middle of an uninhabited wilderness.” (Figure 4).

Selling the Home Computer in Three Countries

In this section, we present our findings from the close reading in a thematic order starting from human-related ones, such as projected users and proposed uses for the home computer, followed by technical and commercial themes. All of them can be considered as different aspects of the script of the home computer – users and uses are the most evident examples, but the balance between features and pricing also reveals presumptions made about the audience. We are by no means dealing with a static and uniform script here: home computing was completely different in the late 1970s than in the mid-1980s, as could be observed in the research material (cf. Haddon 1988).

Among the most interesting findings are the claims of augmenting human capabilities with a computer. For instance, the Camputers Lynx was supposed to ’increase the size of your memory’ (*Personal Computer World*, December 1982) and the Oric Atmos was called ’a cure for amnesia’ (*Your Computer*, March 1984). These kinds of ideas date further back than the 1980s, with Douglas Engelbart’s *Augmenting Human Intellect: A Conceptual Framework* (1962) as an early well-known example of the same line of thought (see Bardini & Horvath 1995). On the whole, the home computer was presented as an enabler that would develop its users and teach necessary skills for the soon-to-be information society. Images of astronauts and other space age themes were one typical means of emphasizing the future-orientedness (Figures 5 and 7).

Figure 5. An astronaut confirms that the Spectravideo 728 shows the way (Printti 8/1985).

What could one do with a home computer then? Companies proposed a wide spectrum of possible uses, some grounded in reality and others rather speculative. The machines themselves, their software, manuals, and brochures were examples of Akrich's (1992) scripts: different kinds of uses were envisioned, facilitated, and hindered by them (cf. Bardini & Horvath 1995). Among the most typical ones, as seen in advertisements, were education, programming, productivity, home business, and entertainment. Online services were still in their infancy in the early 1980s, but signs of their arrival could already be found in the material (e.g. *Personal Computer World*, March 1984). More imaginary fringe ideas were, for example, menu planning for parties, wallpaper cost calculation, biorhythms, and freezer inventory. While all of them were technically possible, it was a completely different question whether there was actual software for the purpose – in hindsight it is evident how companies overpromised capabilities that never came to be. Most computer models were not compatible with each other, so the applications available for one platform did not generally benefit the owners of another. In addition to textual content, images showing business graphs, impressive visualizations, art, and games communicated the script to the audience.

The origins of some of these scripts are easy to trace. By the 1980s, business computing had already become commonplace, which pointed at uses such as text processing and finance for

home computers as well. Programming had been a necessary skill right from the beginning of computing, so it moved naturally from the context of mainframes and minicomputers to microcomputers. Electronic entertainment in the form of arcades and video game consoles preceded home computers and provided another proven technological script (e.g. Donovan 2010, 16–37; Montfort & Bogost 2009). In contrast to these safe existing scripts, Ted Nelson's (1977) visionary book, *The Home Computer Revolution,* serves as an example of early optimism where the computer was portrayed as multi-purpose and emancipatory – in practice such potential was not realized, which led to a certain disillusionment (Haddon 1988; see also Bardini & Horvath 1995).

Initially, the home computer was marketed toward a select few technology enthusiasts, with previous knowledge and interest in new technologies like radio and calculators. This is reflected in the early advertisements, which focused on programming and tinkering. From 1980 on, projected users became more diverse and were intrinsically linked to the computer's script (cf. Akrich 1992). The change is clearly revealed in the imagery, which shows a progression over time: in the early 1980s, the photographed person was almost exclusively a man, but soon included respectively a son, son and daughter, and lastly a woman (cf. Ware & Stuck 1985). This was part of a new family-forward impression of computers. When the image was of a father and son, the painted scenario was of the father teaching the son, bonding over the machine and generally having a good time together (Figure 6). When multiple children were included, usually a son and a daughter, it was one of the children behind the computer, possibly showing off its ease-of-use.

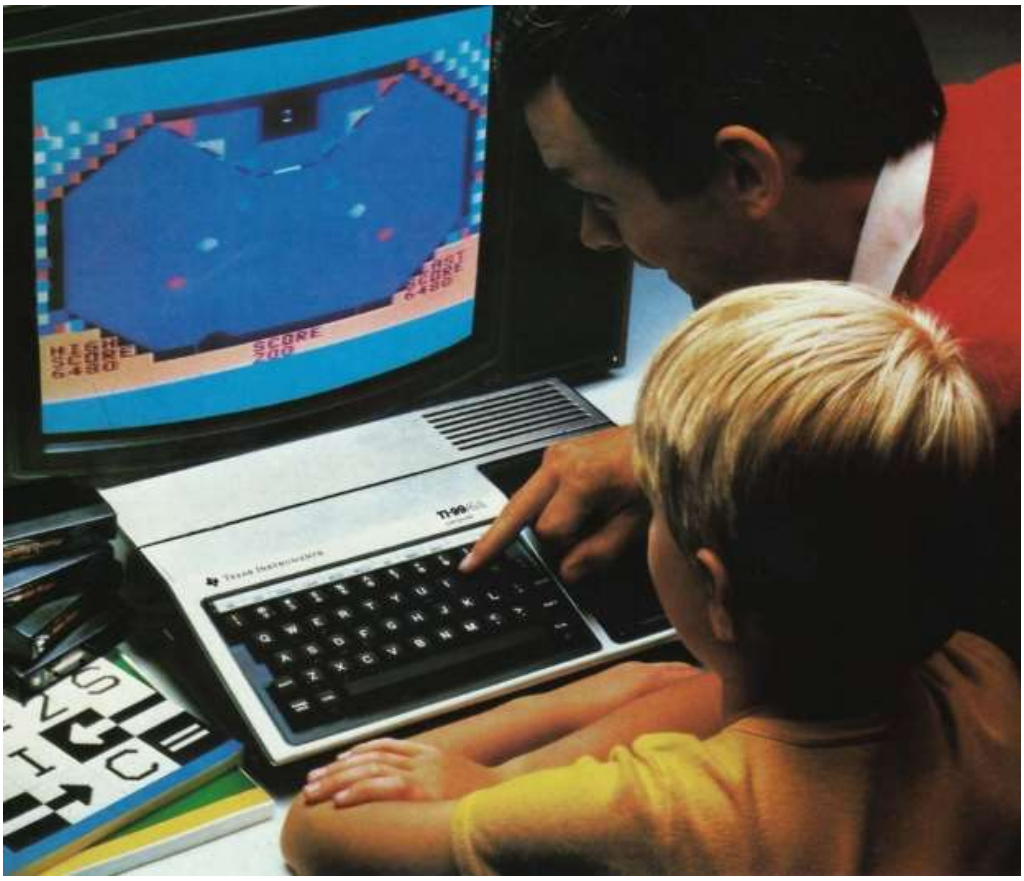


Figure 6. The photo in a TI-99/4A home computer advertisement (Personal Computer World, December 1982). A presumable father-son setting shows the two happily engaged in gameplay.

The scripts that were incorporated into the home computer were linked to the following archetypes with their example use cases (see Figure 7; cf. Ware & Stuck 1985): the adult man, who was often the main target of the ad and addressed as 'you', was portrayed as 'the programmer' or 'the builder', coding software, 'the administrator', doing taxes, but also 'the sophisticated gamer', enjoying digital entertainment after work. The adult woman was portrayed as 'the homemaker', saving recipes, or 'the clerical worker', editing documents. Together they might have been shown and addressed as 'the parents', educating or admiring their capable children. The children were portrayed as 'gamers', playing a variety of video games, or 'students', studying different subjects both inside and outside of school context. Small businesses were also a target audience, with the advertisements promising to make their work more efficient and frictionless. These users were depicted, again, as adult men.

Figure 7. Four uses of the home computer and their projected users: a young boy playing games, another young boy using the ViewData system Viditel, a woman reading a recipe, and a man taking care of the monthly household budget. Picture taken from a Dutch Philips P2000 advertisement (NRC Handelsblad, April 21 1984).

Programming was a common hobby on the 1980s' home computers and a skill which was considered important in the information society (e.g. Saarikoski 2004b; Swalwell 2008). Thus, the strong presence of various programming-related topics in the advertisements does not come as a surprise. BASIC was the dominant programming language of the time, and companies touted the ease and completeness of the implementation that came with their computers (see Montfort et al. 2014, 157–194). The number of recognized keywords, sometimes even individually listed in the advertisement, served as one indicator of the quality. The availability of other languages from Logo to Pascal was, similarly, an often-mentioned strength. Programming was portrayed as fun and easy, especially with the help of the manuals that came bundled with the computer; the book, a familiar old medium, was something that the users would know how to use, as opposed to the machine itself. These 1980s' discussions seem unexpectedly fresh again, as the appreciation of coding skills has made a recent comeback (Tuomi et al. 2017).

Digital games were already a divisive subject in the 1980s: on the one hand, they were a highly popular use for home computers, but on the other hand, they were considered as mere pastime and underutilization of the possibilities offered by the computer (e.g. Haddon 1988; Kirkpatrick 2016). The same dichotomy was reflected in the advertisements where games were, at the same time, both visible and hidden: making games the main selling point was considered risky, as parents looking for a computer for their children might be alarmed, yet computer manufacturers and resellers were well aware of the popularity of such entertainment. The typical solution was to hide games among other content, perhaps mentioning them only last after a list of educational and productivity uses – when doing that, it was still useful to mention how there was a good selection of quality titles available (see Figure 8). Chess was a particularly suitable one to show, since it was both entertaining and developmental, unlike shooting and other arcade games (e.g. *Practical Computing*, March 1981).

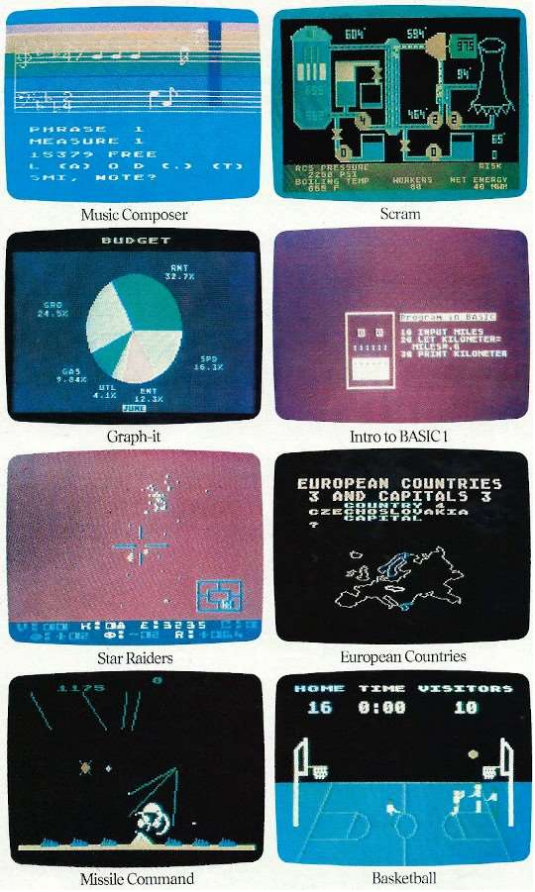


Figure 8. The screenshots included in an Atari 800 advertisement. Productivity and educational software first, games last (Personal Computer World, July 1982).

To make the home computer attractive to even a layperson, companies put an emphasis on their products' ease of use and installation. They underlined that there was no need for prior experience, either with programming or computers entirely. The purchase would come with one or several manuals that ensured anyone would be able to connect their computer and get started right away (e.g. *Sunday Telegraph*, September 1981). Over time, the promises changed from 'with just a few hours of reading, you will be able to program your computer to your wishes' to 'ready to use straight out of the box' (e.g. *Elektuur* 1/1981): as software availability improved, programming was claimed to no longer be necessary, and one could instead make use of the many convenient programs at hand. While most manufacturers or retailers did not provide extensive technical support, in some Dutch advertisements there was a mention of services where the user could reach an expert to help them with their computer problems. These services were typically tied to a dealership to promote their benefits (e.g. *Algemeen Dagblad*, June 1 1985).

One of the main questions related to ease was language, since computers were indubitably rooted in English. Herein lies one of the main differences between the countries: in the UK, prospective buyers were delighted at not needing to learn a different language, as the machine, at least in some sense, already understood English; in the Netherlands and Finland the buyers had to be reassured that they, too, could learn to use computers in spite of the linguistic barrier. English was already widely taught in both countries at the time, but schoolbook language was not sufficient for understanding technical terminology. Thus, the availability of localized manuals and software became a notable selling point. This is a repetitive mention that appears in almost any advertisement, and for a good reason: if there was no Dutch or Finnish content available, that could very well have been a dealbreaker for the patron.

Technical specifications were one common way to convince customers of the excellence of the computer, which at times led to overwhelming them with minute details that did not necessarily have much relevance to the layperson of the 1980s. The number of octaves the sound chip could output or the vague mention of 'high-resolution graphics' seem like useless information in hindsight, but they may have sounded impressive at the time, especially when compared to competitors' products. One interesting feature that was mentioned several times was the quality of the keyboard, which reflects the rapid development of home computers: the Sinclair ZX81 from 1981 had a flat membrane keyboard, followed by the rubber keyboard of the ZX Spectrum (1982), and finally a typewriter one on the Spectrum+ (1984). British competitors' advertisements made

direct and indirect references to these Sinclair products, claiming their own keyboard was superior (e.g. *Practical Computing*, March 1981; *Personal Computer World*, December 1982).

Rapid technological developments were part of the home computer age, and existing models could quickly become obsolete when new, more advanced ones arrived on the market (cf. Murdock, Hartmann & Gray 1992). To alleviate this well-founded fear, advertisements often emphasized that the model you were buying would continue to serve for years to come. Effectively all manufacturers claimed that the machine would 'grow with you', meaning its capabilities could be improved with various hardware extensions ranging from memory expansions to printers as your skills and needs grew. In the case of market leaders it was indeed true, but the short lifespan of commercially unsuccessful computers ensured that their owners would quickly find themselves without support (cf. Lindsay 2003).

With a wide spectrum of home computers on the market, ranging from very cheap to upscale, a way to stand out and gain favorability amongst the general public was advertising the machine's affordability. This was done in several ways, the self-evident one being the price of the home computer itself (see Figure 9), but no matter the cost, almost all texts would mention the great *value* for money. Naturally, it was more convincing with cheaper models that supposedly possessed the same capabilities as more expensive ones which were, in turn, marketed with similar claims. Something that went hand-in-hand with the bargains was that the consumer did not need to purchase any additional devices to get the computer to work, as it could simply be connected to their existing TV set and cassette recorder. In the same breath, the companies would go on to promote their monitors, data recorders and other peripherals as a superior and seamless way to experience the device.

Figure 9. Some early British advertisements displayed the price without the 15% value-added tax to make the offer appear even better (Practical Computing, March 1981).

As the last theme, advertisements featured the common technique of emphasizing that many others had already chosen the product before. Phrases like ’Britain’s best selling personal computer’ (Sinclair ZX80, *Practical Computing*, March 1981), ’Immediate sales success’ (Sega SC-3000, *Tekniikan Maailma* 20/1983), and ’Already conquered Sweden’ (MicroBee, *Printti* 1/1984) can be found across the three countries. Going with the mainstream must have been a comforting thought for a confused consumer, as a purportedly large user base provided security, support, and longevity. Invoking national pride or the notion of supporting local business was less common but appeared in at least Sinclair’s and Salora’s advertisements: there was an explicit mention of how the ZX81 was built in Britain, and that the Finnishness of Salora would provide stability for the Fellow (*Sunday Telegraph*, September 1981; *Tekniikan Maailma* 20/1983).

Conclusion

The home computer developed rapidly from an enthusiast curiosity into a mass market product over a period of just a few years, which can be observed in, for instance, its packaging, technical details, and marketing. By the mid-1980s, the initial boom was already over and several manufacturers were either in economic trouble or had retreated from the market, as it was getting increasingly hard to stay lucrative among the merciless competition. Thus, the initial diversity was quickly replaced by the dominance of only a handful of successful brands. The home computer stabilized in the hands of millions of owners and initial, projected users and uses increasingly turned into real ones.

No stone was left unturned when trying to convince the audiences about the excellence of a particular machine. The arguments related to human factors were often positive by nature: the home computer would augment your skills, help you in many ways, and future-proof you as well as your children. The flipside of the coin was that if you did *not* tag along, you would be left behind – perhaps not using these words exactly, but the message was certainly there between the lines. Plenty of effort was invested in alleviating the fear of the computer by promising ease of use, steady support, and helpful manuals. The proposed uses ranged from realistic and already existing ones to imaginary fringe cases, as the machines had not yet settled as part of everyday life. In practice, gaming ended up being highly popular, but its importance was consistently downplayed in advertisements to avoid the possible stigma of a mere entertainment device.

Technical features were, likewise, a major selling point and the consumers were frequently flooded with impressive sounding lists and comparisons of kilobytes and sound channels, which may have been understood by an enthusiast, but much less so by a layperson. Localized materials ranging from books to software were a clear asset in the Dutch and Finnish markets, whereas in the UK language was effectively a non-issue, owing to the prevalence of English in the world of computing. All these themes combined constituted the script of the new device: how it was to be used, by whom, and what constituted a ’home computer’ to begin with.

The analysis of magazine advertisements and brochures revealed how surprisingly uniform they were across the three countries, which highlights how a study like this brings up not only differences but also similarities. In some cases, the explanation was obvious, as the exact same content, such as photos and text, were used across countries. Two examples of such sharing were

the Amstrad CPC advertisements seen in the UK and Finland, and Acorn computer advertisements and brochures which were, apart from the language, the same in the Netherlands and UK. Not all similarities can be explained as straightforwardly, so it seems that in home computer marketing ideas flowed freely across countries and companies, and influences from various origins converged into a shared framework of how to present the machine.

Transnational connections between the three countries were notably imbalanced. The UK was an active player in the European context, and several British home computers were sold in the Dutch and even the small Finnish market. In addition, the British game industry gained a leading position early on, which led to a strong presence in the Netherlands and Finland – both through official and pirate channels. As for the Dutch connections, it was mostly the multinational Philips whose products could be found abroad: their computer monitors, in particular, found their way to the international market (at times rebranded under a different name). Philips threw their weight behind the MSX standard, which gave it an exceptionally strong presence in the Netherlands; some models ended up in Finland, but at least our source material did not turn up mentions of them in the UK. In this context, Finland was chiefly an importer of foreign products, as there was hardly any home computer manufacturing or game industry in the 1980s. The unidirectional flow of technology eventually changed with the success of Nokia mobile phones in the 1990s.

Only 20 examples per country, or 60 in total, leaves open the possibility that some exceptional theme may have escaped the study. That said, no new observations appeared toward the end of the close reading, and the results from each country were well in line with each other with only modest national variations. The advertisements were mostly collected from computer magazines, which unavoidably colored the sample, as the readers could be expected to be familiar with or at least interested in technology. In addition, our research material represents commercial actors' marketing efforts, not all public discourse regarding home computers and, thus, critical voices are mostly missing: to reveal contemporary skepticism and negative attitudes, a different study would be needed. As for future directions, it would be straightforward to expand the set of countries, preferably with something less similar than what we chose, or to research another subject than the home computer using the same approach.

A comparative study between three countries proved to be a fruitful take – not only because the analysis revealed similarities, differences, and connections that might otherwise have gone unnoticed, but because the research process itself was rewarding. Jointly discovering material

concerning each country, making insider and outsider observations, and explaining national particularities to others fostered insightful discussions that built shared understanding. Any possible fears of researchers sticking to their own silos and only covering their 'own' country were quickly alleviated as the project progressed, which provides further evidence of the potential of the comparative approach when studying local histories of computing.

Acknowledgements

We thank Bart van den Akker, Koen Hoeberechts, Stefan of classic.technology, Nosher.net, Jacob Kemmeren, Andreas Lange, Petri Saarikoski, Tapani Joelsson, Alex Wade, and Tero Heikkinen for their help. This research was supported by the Academy of Finland funded *Centre of Excellence in Game Culture Studies* (CoE-GameCult, decision number 353268).

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All links verified September 23, 2024.

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Elektuur Dec/1978, Sep/1979, Jun/1980, Jan/1981

Hifi 5/1983, 9/1983, 12/1983

ITT Micro Computer brochure 1979

MikroBitti 3/1984

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