A defining artistic phenomenon of the 1990s was the creative practices associated with media art, or as it was often referred to in the decade, new media art. The historical roots of media art reach back to the first attempts at technological imaging, including the invention of the daguerreotype process in the 1830s, which was a precursor to photography. As Walter Benjamin showed (1936) in his essay “The Work of Art in the Age of Mechanical Reproduction,” and especially the appearance of photography, had a significant impact on the public reception of art, while also preparing the ground for radical changes in visual art as a whole. Indeed, the emergence of avant-garde art was in part a response to the novel artistic possibilities that arose from technological imaging.

The new media paradigm was based on the creative use of the novel digital media that became available during the 1980s and 1990s. The process involved the integration of computer technology into artistic practice. The integration of the Internet, wireless networks, mobile phones and other devices then ensued. The fact that photography, film, video and other analogue tools came to be included among the tools of fine art in the nineteenth and twentieth centuries laid the foundations for artistic practices that reflected on the technological, aesthetic, cultural, social, and political aspects of the emergence of digital media. A new wave of medium experimentation, as emphasised by the early avant-garde, was signalled by the novel attitudes towards arts of the 1960s and 1970s. At the same time, there was also a need for a radical reconsideration of the previous institutional framework. The practical use of the mass media, telecommunications media and electronic network possibilities served to further this aim.

In the 1980s, access to personal computers opened up a new field of creativity and experimentation. Hungarian and Hungarian-born artists played a leading role in the evolution of computer-based art, as revealed in the essay by the curator Márton Orosz, which was published in the catalogue for the 2016 exhibition at the Hungarian National Gallery entitled Hungarian Artists and the Computer: The Reconstruction of an Exhibition. A pioneer of computer-based art was Vera Molnar, who has been living in France since 1947 and who, in the 1960s, developed a specific visual language for art based on computer algorithms. The geopolitical confines of the Cold War impacted upon the use of the computer for artistic purposes. Whereas artists in the West had access to computers from the end of the 1960s onwards, in the Eastern Bloc countries such opportunities were limited by the Cocom list, which restricted the export of Western technology to the East. Fine art exhibitions relating to the early use of computers were held from the late 1960s onwards, with one of the first in the region being the exhibition Computers and Visual Research (Kompjutori i vizuelna istraživanja) which constituted the fourth part of the New Trends (Novi trendovi) exhibition series, held in Zagreb (in the former Yugoslavia) in 1969. Although Hungary enjoyed many advantages within the region (e.g., by the early 1980s, the Institute for Computer Science and Control and the Central Research Institute for Physics had already acquired Western computers), it was only in the latter half of the 1980s that fine and graphic artists began to gain access to computer technology. Computer art was first shown to the Hungarian public at the Egnátnyi exhibition, held at the Museum of Fine Arts in 1986. The selection comprised works submitted following a joint call from the magazine Új Impázs (New impulse) and the Institute for Computer Science and Control. The art was then presented in analogue form (prints) at the exhibition "Energia: Praxis and Potential," produced graphic artworks on modern computers provided by the Institute for Computer Science and Control. The art was then presented in analogue form (prints) at the exhibition "Hungarian Artists and the Computer: The Reconstruction of an Exhibition." Accessing new technology and the empathic atmosphere surrounding it were important factors in the initial optimism surrounding the political, social and cultural transformation of Hungary in the 1990s. The Internet, available worldwide since 1993, emerged as a new type of global real-time connectivity.

The need for artists to connect can be traced back to the network activity of the international mail art community that emerged from the Fluxus movements in the 1950s and which anticipated the artistic networking made possible by the Internet in 1990s. With the advent of telecommunication media (e.g., telephone, television, fax, video, and other image and sound recording devices), artists had new opportunities for communication. International telecommunications projects in art were implemented in Hungary even before the change in political regime in 1989. Among the first was Artpool’s project in 1983 entitled Telephone Concert, during which a four-hour sound performance concert took place over the phone line with telephone connections between Budapest, Vienna, and Berlin. Organised by Robert Adrian X and Helmut J. Mark, the event was coordinated by Artpool and János Vető in Budapest. As a continuation of the project, in 1993 the year-mark
an adaptation of György Jovánovics’s sculptures. Gábor Bódy’s video art, or Béla Kondor’s graphics in a multimedia environment. The first series of the Miniforum international media theory conferences initiated by the Media Research Foundation and held between 1994 and 1996 at the Hungarian Academy of Fine Arts were organised around the issue of multimedia, concerned primarily with the possibilities provided by CD-ROMs. In their summary of events, the organisers wrote the following: “here we also presented the World Wide Web...” Internet access for artists became a real possibility from the mid-1990s onwards – primarily through the mediation and support of domestic institutions such as the Institute for Computer Science and Control, the Department of Intermedia of the Hungarian Academy of Fine Arts, Étudó Loránd University, the Budapest University of Technology and Economics, and then C³, established in 1996, or the Artpool Art Research Center. The latter two institutions remain important sources for the early history of Internet culture (mainly websites of media archaeological significance). In the former communist countries, access to the Internet was symbolic of the new public utilities in the post-transitional period, reflecting both the transformation of access to culture and the new opportunities for international connectivity among artists. In the early techno-optimistic period, the potential dangers of networking were largely ignored by everyone except for a narrow circle of activists. Indeed, the World Wide Web represented technical freedom and an aesthetic toolbox. It also diverged from the traditional system of institutions, thus forming a connection with avant-garde traditions. Visual artists were encouraged to use the Internet within the framework of such experimental institutional models as the Department of Intermedia of the Hungarian Academy of Fine Arts, C³, or Artpool, which indicated the need to transform the media and institutional frameworks. In effect, multimedia entailed the expansion of the artists’ toolboxes, by way of technical possibilities such as dynamic hypertext and hypermedia content. These opportunities were later shared by the democratic domain of the Internet as a presager of Internet networking, the floppy disk and CD-ROM formats facilitated the compilation and subsequent distribution of copious quantities of audiovisual content in multidimensional structures. As members of the artist group Artworld Anonymous, Balázs Beöthy, Zsolt Mesterházy, and Rolland Pereszlényi developed a project entitled A Baedeker to Telephonia, which became the Budapest branch of the SCCA, was to promote the use of the Internet and the international exposure of Hungarian visual artists. C³ soon became an indispensable actor in the development of Hungarian media art in the 1990s, organising exhibitions, issuing grants and scholarships, overseeing international residency programmes, providing web hosting and domains for cultural organisations, and constructing a seminal media art collection. The first web terminals in Buda- pest and the founding of Freemail, an e-mail service, were also in part the accomplishments of C³. Despite the telephone, videophone, computer video and telephone systems and their manual operation”. The telephone service providers thus provided the technological infrastructure for the integration of access to a slow “dial-up” Internet connection. When a subscriber was surfing the Internet using the local telephone line, the telephone line was unavailable for other purposes. The telephone service providers thus provided the technological infrastructure for the integration of access to network communication infrastructure and information. It became a manual for free connections to the telephone network and thus free Internet access. By assuming illegality, Artworld Anonymous also had ties to hacker culture. The group’s website... - still in existence today... clearly illustrates the peculiarities of web aesthetics at the time. In the early years, there were many obstacles to Internet access: even with a subscription fee, which was extremely expensive for the private user, a subscriber only had access to a slow “dial-up” Internet connection. When a subscriber was surfing the Internet using the local telephone line, the telephone line was unavailable for other purposes. The telephone service providers thus...
A definitive trend of the media art of the 1990s was the emphasis on the genre of interactive installations. The works, which were usually based on multimedia tools, were also linked with the new international wave of era-specific installation art in the avant-garde tradition and the paradigm of interactive media, which became increasingly important with the advent of digital technology. The digital environment created new opportunities for interaction that had been present ever since the avant-garde: real-time feedback became a feasible possibility, and the limiting of interaction to a single physical location was no longer valid.

One of the first installation works in Hungary to base interactive participation on Internet infrastructure was János Sugár’s Reference Generator, which was featured at The Butterfly Effect comprehensive media art historical exhibition, held at the Kunsthalle Budapest in 1996.21 The exhibition marked an important turning point in Hungarian media art endeavors: the success of the exhibition, which was supported by the Soros Foundation, led to the founding of C³ a few months later. The Reference Generator consisted of a computer and a fan placed on a table in a dimly lit room, with a projection on the wall behind the table. The fan moved a Christmas tree ornament hanging in front of it, the swirling of which visitors could also influence. This movement controlled a random generator via photocell transmission. The word or concept displayed by the random generator from a collection of approximately four hundred words could be read on the computer screen, while the generator was also used to randomly project onto the wall images from a database of hundreds of items. Most of these pictures came from the archives of the Society for the Dissemination of Scientific Knowledge (ITI). The resultant connection served to encourage visitors to create references between the visual and verbal information. The lexical database was partly formed from suggestions sent by visitors in e-mails, thus building on the interactivity of the recipient. Since the computer located in the exhibition space had a publicly available and free Internet connection – for the first time in Hungary – it was also possible to expand the lexical database on site. Sugár’s work focused on the transformational phenomena of the process of reference creation through digital information linking. Owing to the thematic definition, the images chosen for the pro-

21 Sugár 1996.
interface appeared only in 2000. In a pioneering way, El Hassani’s work thus reflected upon the possibilities of synaesthetic associations within a technological envi-
ronment. The work Image Engine – similarly to János Sugár’s work presented in the foregoing – is linked, through the thematisation of the creation of references – and subsequently (in the same year) as a web version.27 The work seeks to function as an encrypted communication interface through which text messages can be encoded into a virtual sculpture, with the verbal content of the messages serving in the form of a virtual sculpture that can be deciphered with the help of Cryptogram. This visual encoding possibility is closely linked to the actual interpretation of fine art. Szegedy-Maszák’s work reverses the process of icono-
graphic decoding, creating the possibility of encrypting a text-based message with the help of an algorithmic system generated by him. Szegedy-Maszák enables encryption using a digital toolbox and by transform-
ing the text and the medium of the sculpture. In 1996, he stated the following about the work: “I wanted to create a real interactive work that provides more for the viewer than simply browsing over a prefabricated hypermedia piece. Instead of a traditional hypertext site, I aimed at publishing a communication system for virtual communities.”28 Cryptogram exemplifies the fact that although the interactive works of the period were based on physical or virtual interventions by – and feedback from – the recipients, in many cases this was based solely on the interactive nature of the technology and did not take into consideration the communication and social conditions for mutual interaction with the recipients. For this reason, instead of the desired interaction, the works often remained confined to one-way communication situations. At the same time, the system created by Cryptogram dispels the limits on interpreting the work of art and creates opportunities for the recipients to contribute, thereby evoking Umberto Eco’s concept of an ‘open work’ in several aspects.29 Szegedy-Maszák also addressed the connections between the virtual space and the reality of 3D sculptures in other Internet based works created during the period, including the works Jemwoshur (1999) and Promenade (1998/2002).

In addition to the aforementioned trends (twist works reflecting on the accessibility of the network, the dual nature of the physical and virtual space, and the interactive nature of the online environment) that had previously worked with traditional media (and who did so later in many cases) were primarily concerned with the limits on interpreting the work of art and creates the possibility of binary coding in the digital environment, applying it to the text of the Ten Commandments appearing in the Old Testament.30 For her part, Brigitta Zicsi organised her own works into a multidimensional virtual system, making use of a Fibonacci diagram to do so.31 In 1999, Tamás Szewczyk created the IPUT / Tűpf website,32 an interface presenting his projects arranged in a hypermedia structure. The main page of the website includes the motto “The web is the generator of coincidences.”33 These works are examples of artists’ curiosity about the innovative technology; their primary aim was to explore the Internet milieu as a possible new forum for experimentalism. The aforementioned cases clearly demonstrate that Hungarian artists’ creative reflections on multimedia and the Internet in the 1990s were mostly the results of experiments undertaken in the spirit of technological optimism. Various institutions promoting digital culture in the early years were instrumental in the creation of works requiring technical background support. They included the Institute for Computer Science and Tele- 

25 http://www.c3.hu/~rub/nok/Vecsei_Julia_link_ 
 27 https://web.archive.org/web/19991008144627/ 
 28 http://www.c3.hu/~rub/nok/Vecsei_Julia_link_ 
 29 http://www.c3.hu/~rub/nok/Vecsei_Julia_link_