Shifting from physical to electronic space: The making of electronic Ecumenopolis

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Introduction

Just like outer space, Electronic space is a relatively new space, although the latter has operationally been with us for almost 100 years. Only a small percentage of the planet's population benefit from these 1-way and 2-way systems that articulate Electronic space. It is however a global issue, because the use we make of it has worldwide consequences for all. But also because problems faced by the rurally-dispersed, the mid-sea isolated, big-city inhabitants and underdeveloped populations may find solutions in it – quite often the only answers for them are in Electronic space.

Just as Berliners found themselves Cold-War separate, although simultaneously historically together, any wall articulates space and the interaction of people on either side of it. Any telecommunications system does the same. It is both exciting and necessary:

- to look into Electronic space issues from a variety of disciplines, from how traditional human settlements are currently run, to art-science-technology activity;
- to examine a range of items from the impact networking has had on social cohesion to the public policy vacuum within which we have allowed our information and communications systems to develop as part of the globalization process;
- to formulate questions relating to human settlements; and,
- to look, in summary, into how more and more people are moving from Physical into Electronic space.

Electronic space, and articulation of it

We have been facing two population shifts – both relating to a variety of inequalities at the global scale:

- the one has us watch the annual rate of urban growth – and yet we (unlike physicists) cannot hope to have a unifying theory on how a city works;
- the other, the one I have been looking into, is people moving from Physical space into Electronic space.

Keen observers have spoken on this early on (from the early 1980s – Mario Costa 1990) and recent figures in the international daily press (however scattered and non-focused) have been quantifying the phenomenon – a good source remains the IDATE Internet World Atlas being regularly updated (IDATE, 2001).

But unlike media hype, and as latecomer sociologists would have us believe, this shift is not due to information/communications technology. Technology has simply been proven state-of-the-art to fit a social phenomenon that preceded the Internet by maybe three, certainly two decades: people in general, and women in particular, sought to be autonomous – of the place they were in, and of those they related to. People have been moving more and communicating more. By doing so they create distance, and then want to bridge it. It is interesting to check on the information coming both from the Physical and Electronic domains, and articulating Built space as well as articulating Electronic space so to speak (MITROPOULOS, 1986 and 1991). They are relating on distance that is to be overcome – an activity that we are all familiar with on a daily basis when we are using an opening in the wall or using telecommunications – but also on creating distance that is not there, like building the Berlin Wall. I mean the Cold-War *Mauer*, or setting up the Face to Face-1 installation (fig. 1) in the art-science-technology context, where people like myself believe most of exhibited art is decoration only, and one theoretician and tenacious organizer announced the end of art as you know it (COSTA, 2000). Let me add here how it has been characteristic of telecommunication processes that when we connect to the other person we remain isolated from that same person at the same time: we are Together/Separate (MITROPOULOS, 2000b), and this has

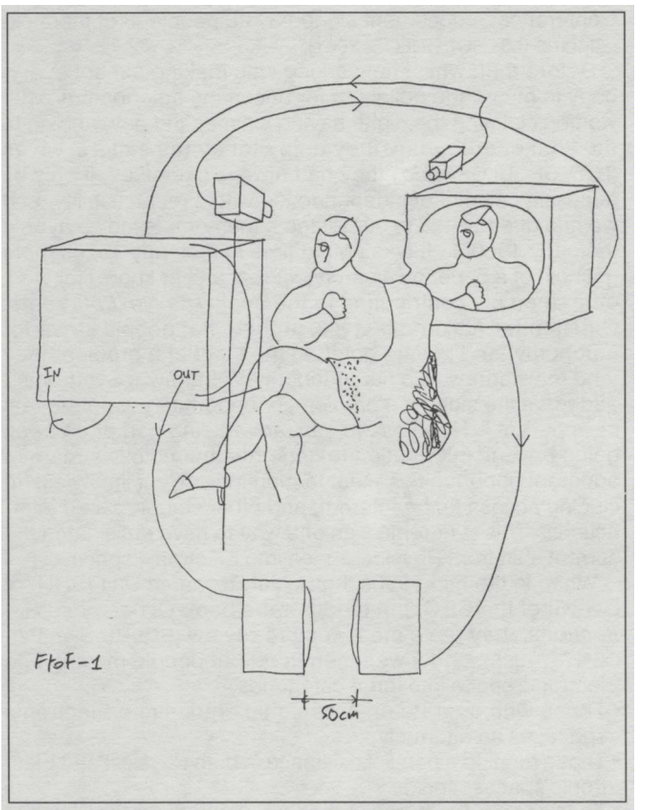

Fig 1: FtoF-1 installation has the two participants feel the back of one another from behind, whilst seeing each other in front. The installation was originally set up in a workshop at the Hellenic-American Union, Athens 1982. It was then developed at EVR of M.I.T. in 1983, and presented at CAVS of M.I.T. in 1984, Salerno 1986, Montreal 1995 (the above drawing).

always been one way to organize Built space for access and privacy. This is the case for semi-private/public spaces (MITROPOULOS, 1976) in the traditional architecture of the islands in the Aegean Sea (fig. 2), and the same also goes for the Internet.

I should stress that by "Electronic space" we certainly do not limit ourselves to the Internet, although we do specifically focus on interactive exchange, whatever the technology.

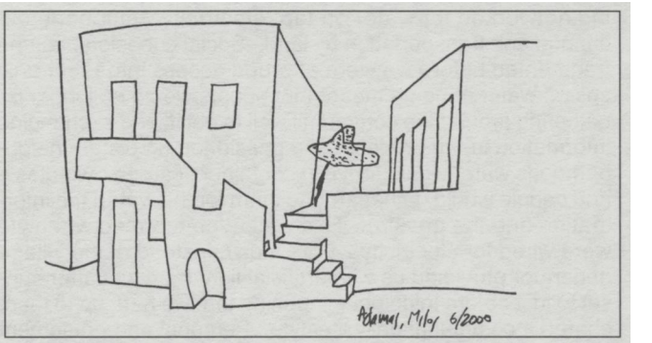

Fig. 2: Semi-private/public spaces permit/afford/solicit even, communications between the public and private domains. Here is an example from Milos island in the Cyclades – an outside staircase type, unusually combined with an elevated open hall (2 of 10 types).

After all, Electronic space has been with us for almost 100 years, from the time of Marconi. We can, for instance, refer to the exciting radiowaves environment of the Battle of the Atlantic in World War Two, a battle of wits between the U-boat wolfpacks below, and the surface vessels moving in convoy formation from the USA eastwards.

Space as a network, and social cohesion in it

The early research I did in the late 1960s as a student (MITROPOULOS, 1969), then in the 1971-1974 period in Edinburgh was on Space Networks (MITROPOULOS, 1974, then 1986, and 1997a), meaning space as a network rather than as place (fig. 3). This was based on personal observations having grown up on ocean-going ships, then having given as a definition of Architecture "the organization of space for movement and communications," and finally having checked with experts in Ekistics during their stunning summer research meetings, including the Delos 1969 trip to which I was invited by Panayis Psomopoulos.

Looking at space as a network made it easy for me to move into issues of Electronic space, and especially so when in the late 1970s (a specifically exciting period for telecommunications debate and application) I moved to M.I.T./USA for one year and stayed for seven. But such network concepts had already helped me understand what was really going on in my village (MITROPOULOS, 2000a) in Greece, when it was be-

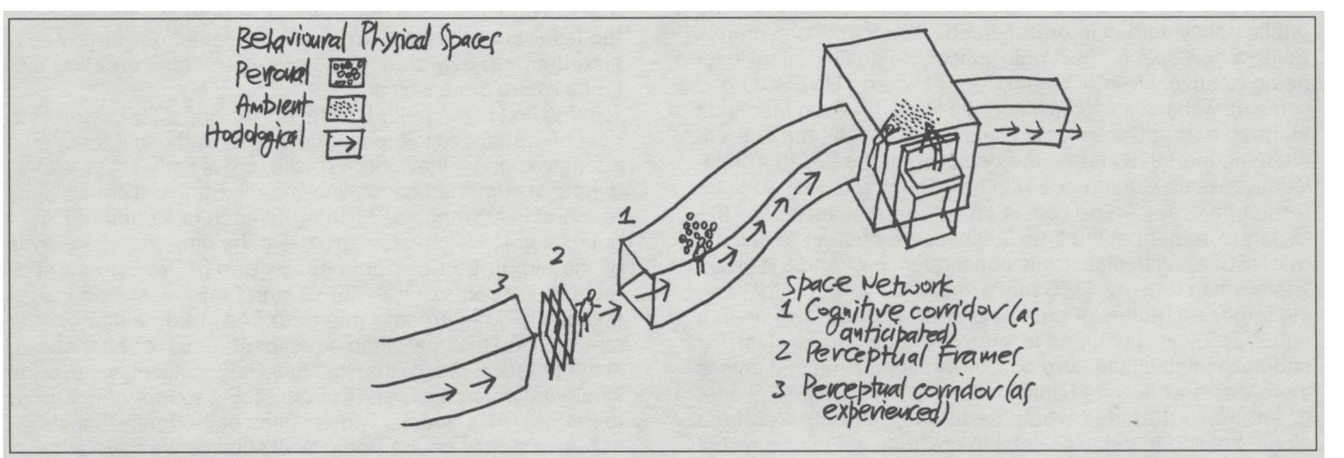

Fig. 3: The Space Networks concept.

ing networked for water on tap, electricity, telephone exchange and transportation by land. Social cohesion became fragmented before we were afforded access into Electronic space: water at home meant that people would no longer be gathering around the communal well to get it, and exchanging information in the process, and gossip too (in distant neighborhoods water would arrive in containers carried by mules – and people would gather around them for the water, the information and the gossip). This was even more so when we were wired for electricity 24 hrs a day, instead of the village generator providing us with artificial light from just after sunset to just before midnight – meaning that we had, up to then, shared a communal daily lifestyle. Personal end-equipment for every home connected with the twisted wire of the telephone had an impact on long-distance, but surprisingly even within the neighborhood. And finally (in the late 1960s) the road connected the village not only to the settlements on either side of the coastline (as people had thought) but beyond it, making the villagers' behavior change from that of an isolated island to that of an Athens suburb, three hours from the downtown area of the capital which housed almost half of the country's population, all eager to abandon it every Friday afternoon (MITROPOULOS, 1999 and 2000c). So much for social cohesion in networked environments, leading to one more village gradually being run as a business rather than as a community, long before we in our village got our first Internet Café which happened this 2001.

In the early 1980s, I checked into the future of social cohesion in urban communities, whilst doing research for UNESCO and EVR of M.I.T., on 2-way interactive cable TV systems in the USA (MITROPOULOS, 1983). Having checked on about 3,600 systems, it became clear to me early on that we were operating in a worldwide public policy vacuum, taking policy as related to use of technology and also legislation – of privacy abuse potential, for instance. Besides the privacy issue, I was impressed by the subtle but clear differentiation in 2-way systems: between interactive as opposed to "response" systems – a differentiation forgotten for marketing reasons – even in the originally non-commercial art-science-technology field. Most of what we today call "interactive" systems in fact are not. The choice of technology means a social cohesion choice in fact (although never announced as such) between community participation systems versus the home-subscriber targeted as consumer, with privacy abuse potential added on.

Public policy and personal autonomy

These above were Electronic space issues focusing on the public policy void in information/communications systems. Being a new space, Electronic space was easier to tackle for being relatively free of vested interests, and UNESCO had come up with the splendid MacBride Report – Sean MacBride as head of that Commission (MacBRIDE, 1979), himself addressing the 1979 ITU on the occasion of the World Administrative Radio Conference with his "Shaping a new world information order." The rest is unfortunate history after the U.S. government at the time felt insecure enough to pull out of UNESCO, with disastrous consequences. And 3-4 years later we had IBM and DEC move into M.I.T. to wire it for moving larger quantities of data at greater speeds – again in a public policy vacuum, and in spite of efforts of many learned people at the Institute. We had known at the time that unless there was a worldwide public policy (be it the UNESCO one, or another), that void would be filled by the marketplace alone, leading to today's unstable environment on the global scale – just as was predicted at the Vancouver 1976 Habitat Conference, a document signed by 28 people, 8 of them ekisticians (MITROPOULOS, 2001).

Before that, whilst networking was making almost everybody in my village delighted for becoming autonomous, with women claiming the night, having claimed the day, and on to the kind of autonomy they enjoy today (as sailors' wives (MITROPOULOS, 1987) they had always exercised, if only by necessity, a spirit of independence within responsibility, and we had already had in our village a memorable lady mayor in the early 1960s). It was at that time in the early 1970s that I got hold of a paper by an architect-researcher known for work other than his contribution to the book *The Next 50 Years.* Christopher Alexander (1968) argued that people strive for autonomy, and having got it, at the sight of a problem they tend to withdraw. To his Autonomy-Withdrawal Syndrome I added "at the sight of a problem, or opportunity, whether real or apparent." Needless to say, advertising had often been going beyond information to generate an endless stream of apparent opportunities – not to mention current lifestyles, including access to the Internet, and other screen-based interactions. This syndrome was one way to have anticipated the current shift from Physical space into Electronic space.

When in the mid-1990s the Social Research Unit (SRU) of DG-XII of the CEC, put together the book *Cyberspace Reflections,* they gave me a copy to review (BOLHUIS and VICENTE, 1995), and it was then that I put people moving into Electronic space into three categories:

- Those who operate on occasional entries into Electronic space, as an alternative;
- Those running a parallel existence in both Physical and Electronic spaces; and,
- Those using Electronic space as a substitute for Physical space.

When? I believe whenever they feel they have a better chance in Electronic space, for reasons of diminished social cohesion in Physical space, the difficult face-to-face interpersonal relationships in it, the end of ideologies, or the systematic disappearance of semi-private/public spaces including urban spaces that function as such – as with downtown Brussels in the last 10 years, so with my village.

On articulating space, electronic and physical

Regarding the articulation of Electronic space, it takes the same aesthetic curiosity (beyond the specific task of communications) to benefit from any of the Face-to-Face (FtoF) installations – as with the semi-private/public spaces in the Greek islands, as well as with the minimal architectural gestures of constructions destined for remote coastal sites (for the latter see MITROPOULOS, 1998). But let us start by considering both overcoming distance, and also creating distance where there isn't any.

In the first case we find ourselves making daily use of a variety of systems to tele-communicate. For those interested, I strongly suggest they check on the real-life city-scale "experiments" as reported on, outlined, compared, and conclusions reached in Mitropoulos, 1983 (the case of Reading, PA, in opposition to Columbus, Ohio). On the other hand, in terms of the simulation-portable scale, and in the art-science-technology context, the FtoF-2, and FtoF-1 installations respectively do overcome (the one) and create distance (the other), using minimal video equipment. This is better shown in the proposal (fig. 4) that has four FtoF installations use the same equipment as we pass from FtoF-1 to FtoF-4 to FtoF-3 to FtoF-2. Also see the two versions of the FtoF-4b installation, specifically on the Berlin Wall subject: we have a transportable wall (fig. 5), then the same installation concept as it

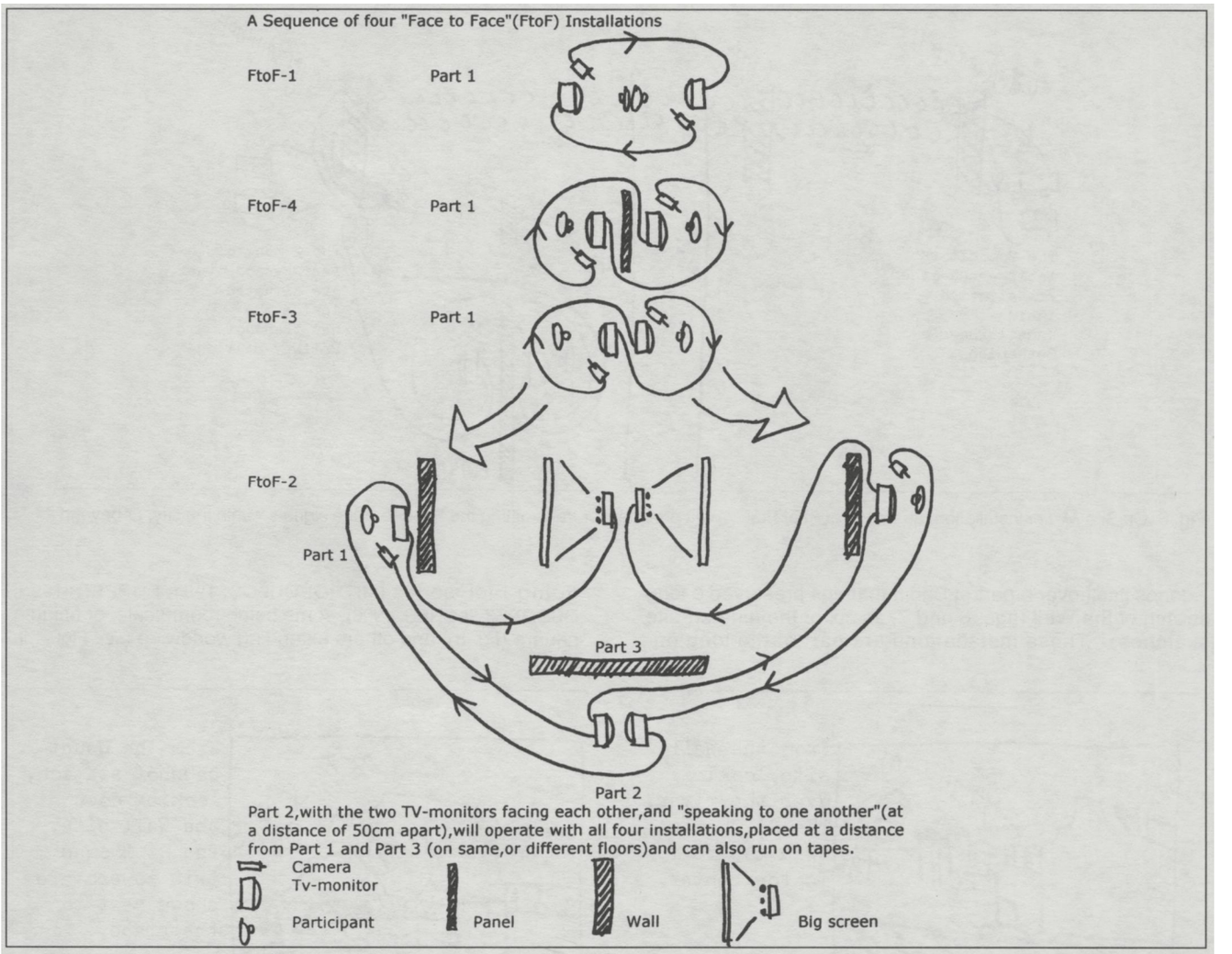

Fig. 4: The sequence of four Face-to Face installations (all 2-way interactive) using the same minimal video equipment: FtoF-1, to FtoF-4, to FtoF-3, to FtoF-2 (we can also start with FtoF-10 leading on to FtoF-1).

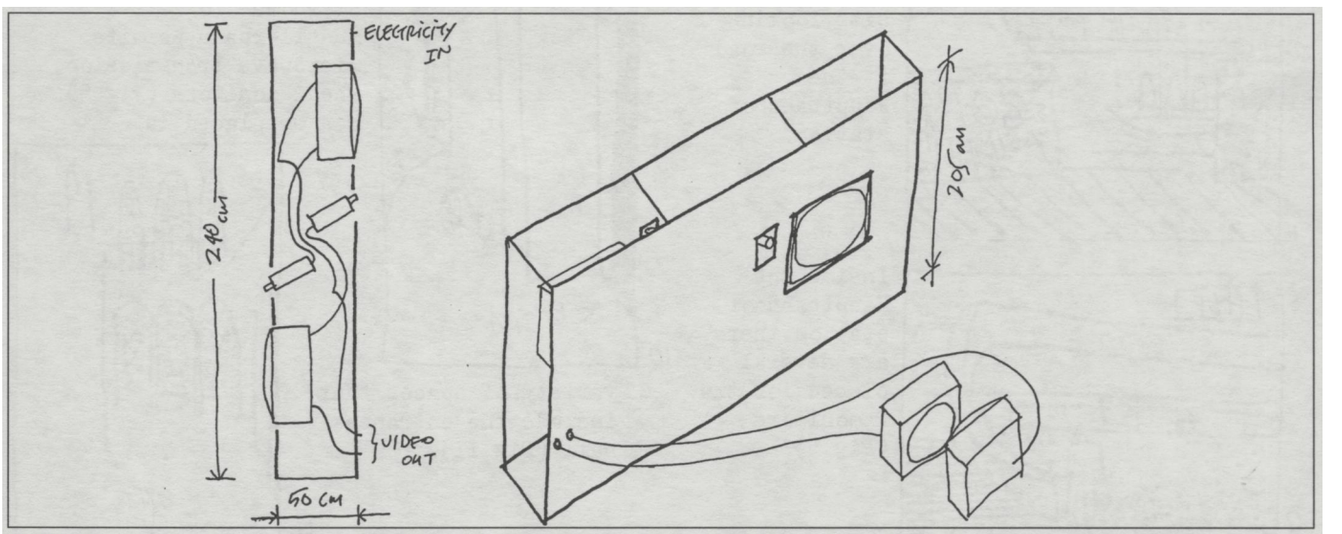

Fig. 5: "Instant *Mauer*" as part 1 (of 3) of an FtoF-4B proposal relating to Berlin. This is a transportable section of a "Wall" made of wood. It is wide enough for a technician to squeeze inside. It has built-in cameras and monitors. Because of its plug-in approach, it can be moved over to sites next to remaining parts of the Berlin Wall.

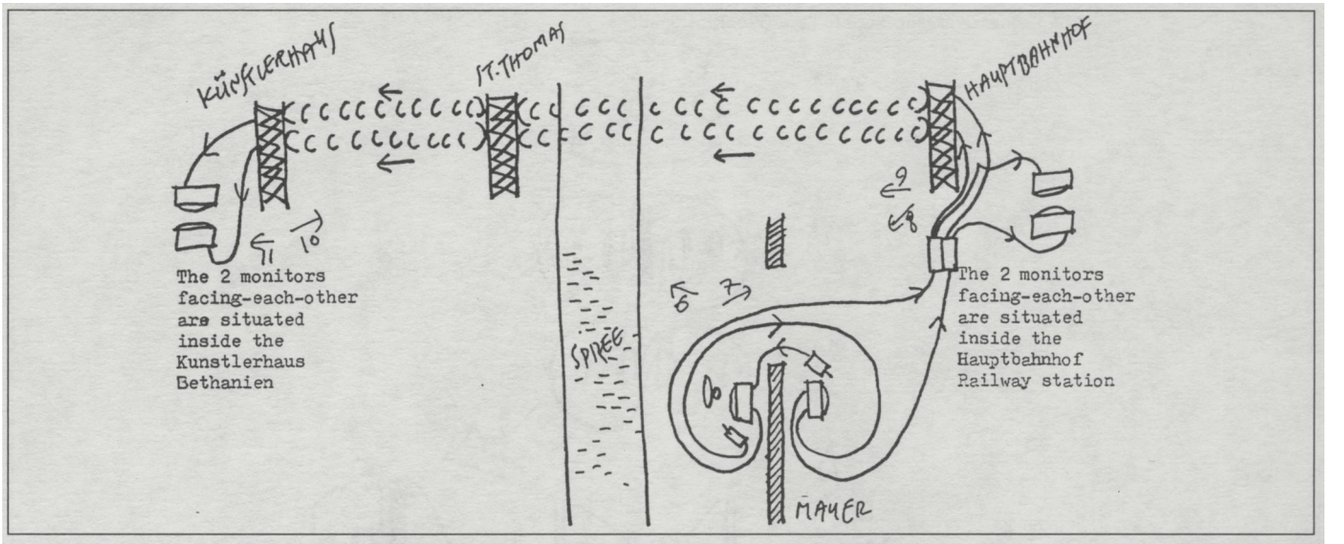

Fig. 6: On Site *Mauer* installation, as part 2 (of 3) of FtoF-4B. It provides for transmitting the Face-to-Face signals within the city, or beyond it.

extends itself over a part of Berlin that has preserved a long stretch of the Wall (figs. 6 and 7, as six of the nine on-site sketches). These installations are part of the long on-going FtoF series (MITROPOULOS, 1991; POPPER, 1993; ORDONEZ FLORES, 1996), some being room-scale, or fitting a square (fig. 8), and others extending worldwide (see FtoF-1 in

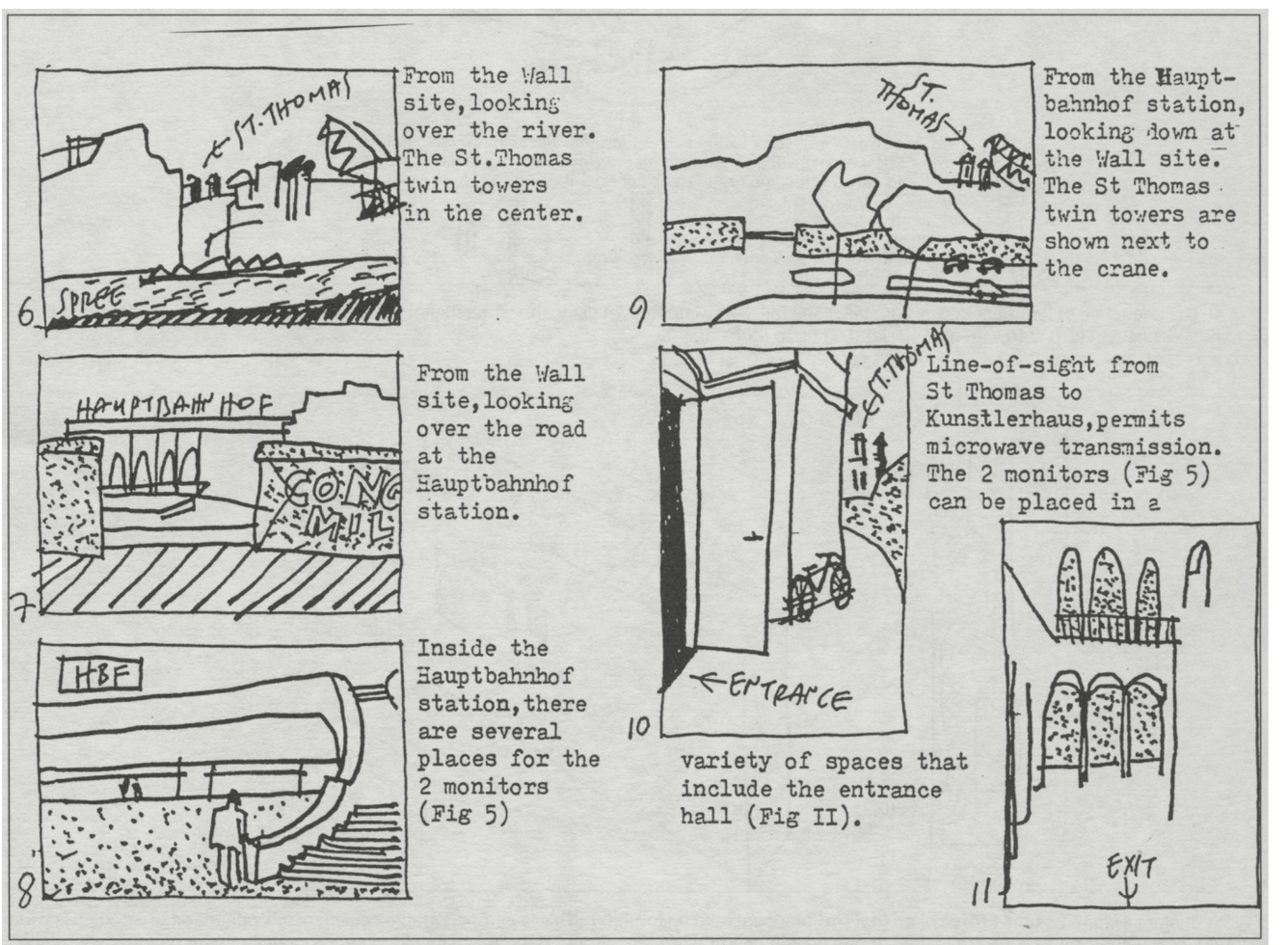

Fig. 7: Drawings 6-11 refer to Figure 6.

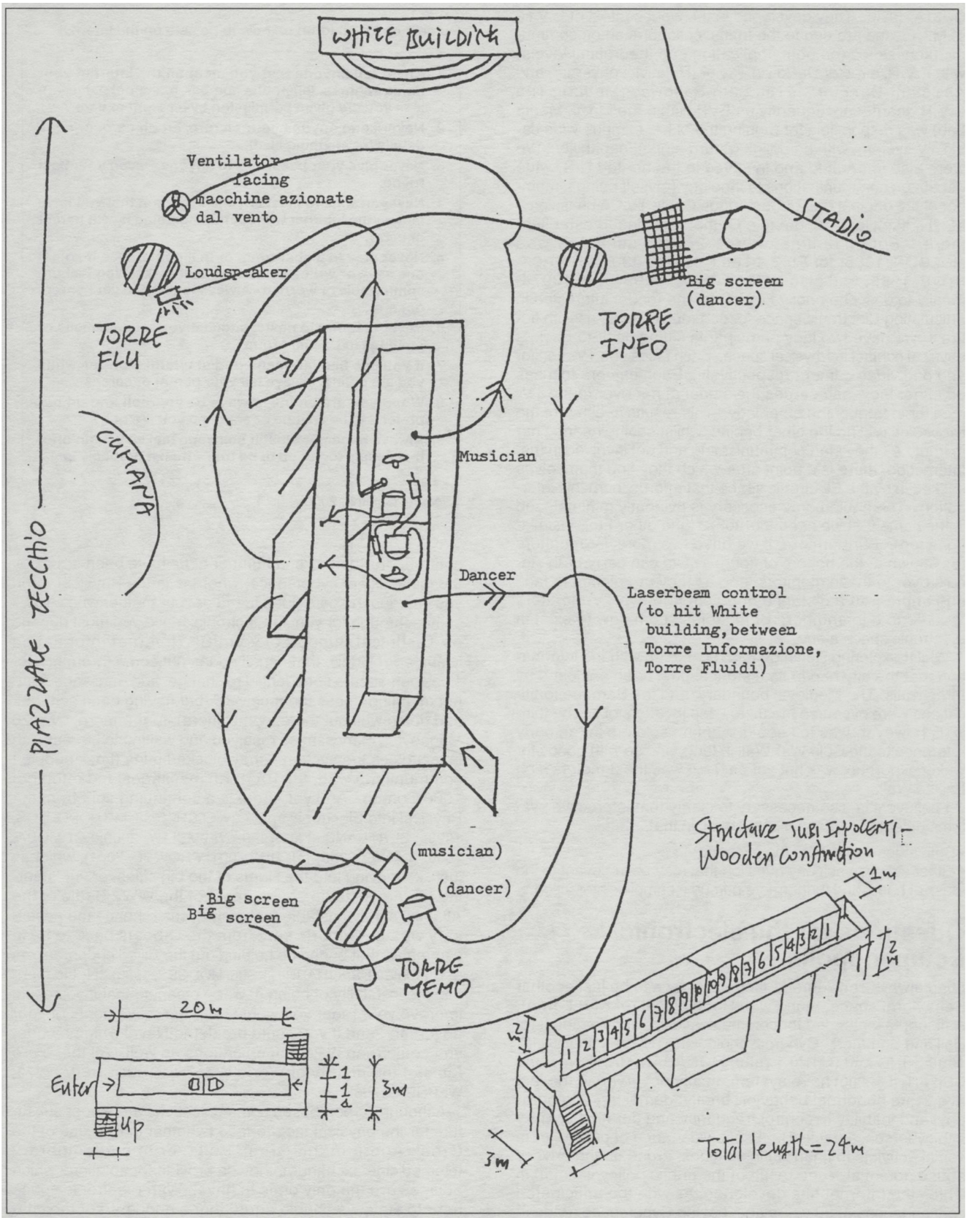

Fig. 8: FtoF-4N invited proposal to Mario Costa for Piazza Tecchio-Fuorigrotta, Naples. The piazza is next to the Cumana transport node, and the football ground-stadium. It is rigged with 3 electronically-equipped towers *(torre)* – see Mitropoulos, 1992. This type of installation provides the direction of my proposal-response to the invitation for Artmedia, Paris, November 2002.

COSTA, 1990). They developed in the work context of E.V.R. of M.I.T., and are due to the fruitful collaboration on communication issues (on both application and theoretical levels) with E.V.R. director Dr Edwin Taylor (Relativity physicist) and Assistant-Director Ms Niti Seth-Salloway (Media). The E.V.R. team (subsequently as EVP within the M.I.T. Media Lab) was responsible for running the M.I.T. campus-wide cable TV system, with an uplink (return-signal) capability. We were also interested and involved in the heated U.S.-wide debate on communications technology (myself being a member of the original City of Cambridge Cable TV Commission – M.I.T., like Harvard, being a Cambridge-based establishment). For an outline of FtoF-2 when activated, see MOEGLIN, 1986; for FtoF-1 see COSTA, 1980, DE KERCKHOVE, 1995, and also MITROPOULOS, 1991 and 1997a. Finally to describe briefly FtoF-1, for the reader interested in articulating Electronic space for communications, as with figure 1: we have two lady participants sitting back-to-back, a physical contact in Physical space. Each faces one TV-monitor and one video camera respectively. Each camera focuses on either lady, and carries the signal of her over to the TV-monitor in front of the other lady. This results in either of the two ladies feeling the other behind, whilst seeing/hearing her in front. As they start communicating and get involved in that interaction, there is a point after which they find themselves sucked in by the Electronic space that affords them this interaction. The equipment necessary is evidently minimal, and is the same that we need for FtoF-2 (and other FtoF installations too). Furthermore, if we have two more TV-monitors (as shown at the bottom of figure 1), we can carry both signals over to these monitors, and as they are placed to face one another at a distance of 50 cm, the two TV-monitors "speak" to one another. Both ladies seem now to exist in Electronic space alone.

Whilst exploring Berlin on foot, I came up with the information that the city had in its historical past been enclosed by three walls: The Medieval boundary, and the Baroque fortifications were of course meant to keep invaders out. The third wall, however, was to keep dissenting soldiers in (an early reference to the Cold War Wall in fact), and so with goods for which export tax was not yet paid – it was the 3 meters high Excise Wall.

I believe it is also necessary to clarify that interactive systems differ from "response" systems in that:

- Both sides can initiate the exchange;
- Either side can ask any question that may be irrelevant to the task at hand, and furthermore pursue a complex interaction.

Questions for the electronic Ecumenopolis

I had always considered Electronic space to be just another Behavioral space, along with Hodological (of Kurt Lewin), Ambient (as intended for communications), and Personal (of Hall and Sommer). Cyberpsychologists (THOMPSON and LIM, 1998; KING and BARAK, 1999; MONAHAN-MARTIN, 1999; GRIFFITHS, 2000) have systematically observed in the last five years abnormal behavior, briefly: gambling, pornography, and inability to control frequency and duration of entry into cyberspace (table 1). Also a wide range of people, from social activists to financial institutions, argue on the privacy abuse potential – one result of the public policy vacuum in which the Internet has developed, as with the anticipated consequences of 20 years ago: having Cyberspace gradually becoming strictly what Information Superhighways were intended to be – a tool for commercial gain and the national security argument (the latter better known as Big Brother control). Furthermore, a number of us have been struck by the instability of cyberspace: whereas in the Physical world you can depend on a good friend or your mother who always comes through for you, in Electronic space you must depend on Technical Support of your ISP (Internet Information Service Provider), that usually does not come through! Besides non-secure confidential exchange, and "message sent" not meaning "message received" (but having been sent out, and doing well out there, somewhere), furthermore, over 20 Megabytes of messages received and waiting to be read can in fact block the system – they blocked mine (I ask people I communicate with, for 10-20 Kb messages and often get 1000K ones). And yet, there is a continuing shift from the Physical into Electronic space (WELCH, 1998; MITROPOULOS, 1998a; BERTRAND et al., 1999; WALMSLEY, 2000; FORMOSA, 2000; BURKE, 2000; THERIN, 2001; PROWSE, 2001), which is just like moving into the slums of the big cities, or volunteering for the unstable environment of the WW2 Battle of the Atlantic: surely unstable for being at sea – hence the necessary weather reports sent from the U-boats back to base command, that ended up helping out the Allied codebreakers at Bletchley Park (HARRIS, 1996; HODGES, 1983). Not to mention the instability of being at war – meaning that if you could improve your radar you would read the movements of your adversary, and if you could break the Naval Enigma code, you could read his communications as well. All these are facts of the history of World War Two (BUCCHEIM, 1979; WERNER, 1998).

Although screen-based communications are a poor substitute for the physical face-to-face (whether in the case of the Greek Agora in the Greek Polis, or in contemporary telemedicine exchange), they do provide for solutions which at times are the only ones to have. With Electronic space here to stay, we should agree that a good part of the city-space is Electronic space: we live in a global electronic polynesia, an Electronic Ecumenopolis in fact. Therefore it is necessary to formulate questions such as:

Table 1
Guidelines for children on how to be safe on the Internet

1. **Never tell anyone that you meet on the Internet your home address, telephone number, or school name, unless you are given permission by a parent or carer.**
2. **Never send anyone your picture, credit card, or bank details (or anything else).**
3. **Never give your password to anyone – even your best friend.**
4. **Never arrange to meet anyone in person that you have met on the Internet without first agreeing it with parent or carer.**
5. **Never stay in a chat room or in a conference if someone says or writes something that makes you feel uncomfortable or worried. Always report it to your parent or carer.**
6. **Never respond to nasty, suggestive or rude e-mails or postings in Usenet groups.**
7. **If you see bad language or distasteful pictures while you are online, always tell your parent or carer.**
8. **When you are online, always be yourself and do not pretend to be anyone or anything you are not.**
9. **Always remember that if someone makes you an offer that seems too good to be true – then it probably is.**

(*Source*: Griffiths, 2000).

- How can a Physical-Electronic space continuum best be attained?
- How can it be used for social cohesion within the Big Cities?
- How useful can it be for interpersonal relationships at any distance?
- How could it fit into the sustainable development of isolated human settlements?
- How could it become part of a globalized public policy, to fill in that vacuum, taken over by E-commerce alone?

This challenge seems all the more urgent now, after the double hit on the World Trade Center twin towers on September 11, 2001. It was a blow to our open society, and specifically to our movements and our communications.

Questions from the floor

To conclude, I would like to add, for the reader of this paper, that there were two questions from the floor at the presentation of this paper:

- The first one came from Serge Antoine who, having been a French government Haut Fonctionnaire, asked the governance question regarding global public policy: Who will govern?
- The other was from Barry Rae, a practising architect in New Zealand, on whether the quality of Physical space has now become more important than ever before: Has it?

• The governance issue has become a priority for environment issues (see the current Kyoto agreement/disagreements) and the on-going process of globalization (see the UN Habitat Report, 2001). One can also ask "Who will govern the cities?" (see the review of the Habitat Report), and the fading out of Cyberspace hopes into the Information Superhighways reality is not encouraging (starting with the 1984 project Athena funded by DEC and IBM at M.I.T., and concluding by having E-commerce standing for worldwide policy). The latest effort I know of (of which I was part, as a Greek Ministry of Culture expert) was launched in November 1997 by the Council of Europe to relate culture to new technologies. In fact, the group of experts originally put together was in part made up of people who had been involved in early art-science-technology work, meaning highly motivated, experienced, and with an a priori cohesion as a group. However, although several people filed meaningful proposals (MITROPOULOS, 1997b), these were not nationally backed up, and the Council of Europe proved unwilling to draw on its own splendid record of the 1970s on the innovative use of information/communications for cultural and social-oriented goals (I pulled out in July 1988). However, one can learn a lot from the relatively successful governance of outer space, as a new space (von der WEID, 1992). To give a specific example regarding policy (without going into any detail), I can refer to the lack of policy for isolated human settlements in Greece: myself focusing on islands (the other kind of isolated human settlements being mountaintops), by policy I mean the provision of services-at-a-distance for medical diagnosis and treatment, education, administration and cultural profile. Finally, I can add that just prior to our WSE meetings at the Wissenschaftszentrum Berlin, there was another Berlin congress on Innovations for an E-Society (Institute of Technical Assessment). One of the items to have been tackled (besides E-commerce, Vulnerability, Health Services, etc.) was Electronic governance.

• Regarding Rae's question, the quality of Physical space as an issue finds me in full agreement. In the face of Electronic space as an alternative or even substitute for Physical space, the issue has not been addressed, mainly because people who organize space (especially those who teach) do not consider Electronic space as part of the Behavioral space they themselves live in, of the city they live in. One can go even further and say that the same goes for interpersonal relationships. We should note that Electronic space, besides being economically affordable and technically accessible, also provides for anonymity. But besides deviant behavior, cyberpsychologists recording addictive sexual behavior in Electronic space stop short of asking the question relating to the quality of sexual contentment in Physical space. After all, if your girlfriend in the physical world is blooming, why search for an electronic one?

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