Planning the Digital City (the rising up of the M.E-tropolis)

Romano FISTOLA

arch. Romano Fistola, Land Planning and Management Institute - National Research Council of Italy,via P. Castellino, 111 - 80135 Napoli.
E-mail: fistola@ipiget.na.cnr.it

1 THE M.E-TROPOLIS

The NTI are “innervating” an increasing number of cities in order to perform new multimedial facilities and to lift up their international competitiveness. This process is pushing the city toward a new electronic dimension.

The information is assuming progressively the role of new good for the urban economy. The city produces, it elaborates and it transfers information to the inside and the outside using its telematic network able to smash the concepts of space and time. The modern city goes more and more as place of relationships concentration characterizing itself, as space of transaction, as "an enormous communication machine", according to what observed thirty years ago by Karl Deutsch (Deutsch, 1960).

A lot of urban functions (commerce, health, education, finance, etc.) are transferring from the real city to the network, through a process called functional “virtualization” (Fistola, 1999), a consistent part of their services for the user generating, in this way, new telematic activities (e-commerce, telemedicine, home banking, on line trading, etc.). The technological innovation has made available products and trials that are assembled in the city and that are quickly spreading itself inside the different fields of the urban activity. A kind of new urban dimension is growing up therefore, already called in different ways (intelligent city, city of bits, virtual city, digital city, etc.) built by electronic places (town hall, bank, library, hospital, etc.) accessible by the net: the M.E-tropolis (Fistola, 2001).

By taking that into consideration, from a town planning point of view, it is necessary to envisage how the scenario of the urban system will be in the future. The adoption of a systemic approach could be useful in order to define a new interpretative model of the city since it seems to offer, by looking at the physical reality, olistically the best opportunity for envisaging the interrelations between the elements of the system (Bertuglia 1991). Moving from this assumption it is possible to sub-divide the urban system in some subsystems. In particular, it is possible to define three different subsystems: a physical subsystem, a functional subsystem, and a perceptive subsystem. In this sense it has been formalized the “three city theory” (Beguinot, 1993), that may characterize a representative city for each of the mentioned subsystems: the stone city, the city of the relations and the city of men.

Starting from this premise, it seems important in a town planning point of view, to formulate hypotheses and proposals concerning:

- ?? new interpretative models of the urban system that allows to foresee its possible evolutions in relationship to the impacts of the technological innovation;
- ?? new way to understand the functional virtualization inside the city;
- ?? new approach to the new relationship between M.E-tropolis and man.

The M.E-tropolis is reasing, it’s important to envisage from now new way to manage its development.

2 A NEW INTERPRETATIVE URBAN MODEL

What do we intend by the term “M.E-tropolis”?

The M.E-tropolis is not, or it’s not only, the civic networking. With such term (in this study) we want to point out a wider meaning of that commonly used for pointing out the presence of a civic networking.

In an urban point of view it is possible to affirm that the digital city represents the new electronic dimension of the city, the “urban cyberspace” inside which the image of the city is built thanks to the progressive virtualization of the urban functions.

But it is to proceed well step by step.

As the systemic interpretative model is known it assimilates the city to a system (Mc Loughlin, 1969).

Considering the system properties it is possible to decompose the urban system in sub-systems.

To such intention it seems useful to recall the salient points of the “Theory of the three cities” that it subdivides the city in three sub-systems: the physical system, the functional system and the psico-perceptive system (fig. 1).

To every one of such sub-systems it is possible to associate an urban image: the city of stone (physical system), the city of relationships (functional system) and the city of man (psico-perceptive system). The “city of stone” it’s made by the physical containers (buildings), by the places and by the channels for the mobility (streets).

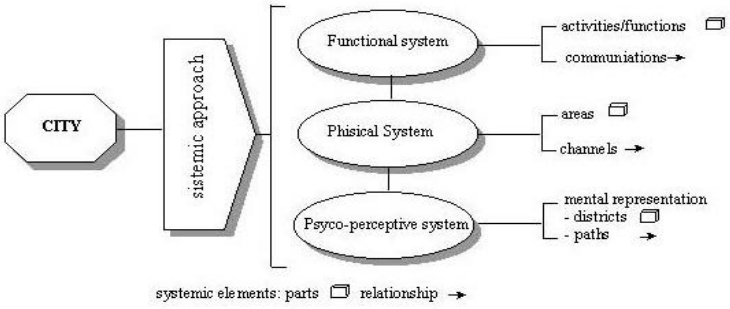


Figure 1: The systemic interpretative model; parts and relationships of the urban subsystems

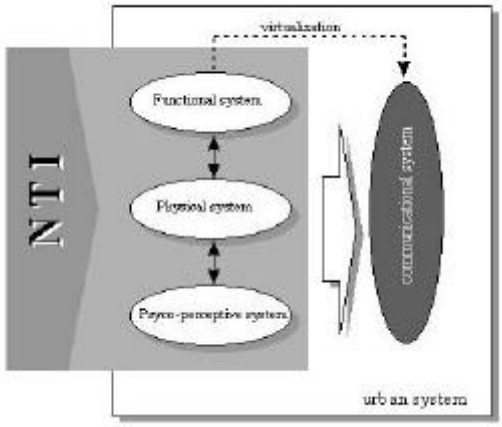
The "city of the relationships" has urban activities as parts and communications as elements of its structure. The “city of man” it’s defined through the perception of the urban dimension by the citizens, it is the city that each of us got inside himself, whose image is born by the complex and mutable relationship that is established among citizens, city of stone and city of relationship (Papa, 1993).

The three sub-systems are component of the urban system. Among them there are relationship that allow to connect every element of the functional system (activities) with its homologous in the physical system (container or area), where the activity is located, and the corresponding mental image of such spaces that citizens build in their mind. Assuming such formulation it’s necessary to verify if the digital city can be intended as a new urban subsystem and how it interacts with the others three sub-systems.

More in detail, considering the systemic model (that assimilates city to a complex system it would appear necessary to verify if the image of the digital city corresponds to an urban subsystem, that we could define “communicational”, endowed with parts and relationships. This forth sub-system would go to increase the sub-systemic component of the city.

If such hypothesis is true for the communicational system should be defined convenient strategies of government and consequently a general redefinition of the management processes of urban transformations. In another way the digital city could be considered just as an evolution of the functional system (city of the relationships), but also in such cases modifications of relationships should be studied the for the four under-systems activate (fig. 2). Wanting to verify, even though briefly, the first formulated hypotheses seems obviously necessary to identify, in the new communicational system, the characteristics and the elements of a system (parts and relationships) theorized in the General System Theory (Bertanlaffy, 1968).

In such case it is possible to affirm that the communicational one can represent a system because: if we do a full immersion in the cyberspace (in which the digital city is reconstructed), it will be possible to distinguish some “parts” (represented by the virtualized functions) and it is also possible to single out some “relationships” (connections) among such parts.



Scheme 2:The new interpretative model of the city

Actually the parts of the system are more easily perceivable because of, likewise to the functional system, they are represented by a new organization of the urban functions and constituted by situated electronic sites where it’s possible to go through the net. To identify the structure of the system (made by relationship) it is not so easy. Being inside a space of synthesis, in which every functional site allows fruition through an hyper-textual interface, it is possible to observe that the relationship between two parts (and therefore among two sites) are activated when the citizen chooses to use a link or to move to the address of another site.

Being in the cyberspace it is possible to reach any address in the net or to activate any connection (relationship) to move from a site to another. In such case the net represents a world wide structure (of relationship) of the system that allows us to go wherever from any site. So, in this case, the digital city finds its systemic correspondence in the communicational system. The new composition of the interpretative model requires a remaking of the town planning theories and methodologies. The new urban planning has to be redefined beginning from such new urban paradigm.

3 FUNCTIONAL VIRTUALIZATION AND TOWN PLANNING

The town planning substantially founds its processes of government of the

territorial transformations on three actions:

- ?? the definition of the typology of functions to be located on the territory
- ?? the distribution of the activities inside the territory
- ?? the decision of how much activity has to be placed in a territory (intensity of use)

These three actions conditions the future order of the city.

The processes of virtualization of the urban functions put in crisis such procedural model contributing to modify in a substantial way the three described actions.

In other terms the progressive functional virtualization modifies the typology of the urban functions to locate (point 1.), it redefines the possible distribution (point 2.) of it and, above all, “decreases” the intensity of use of urban territory.

In order to describe this process better it is perhaps possible to apply to an analogy.

A pot is imagined full of water that is set on a flame (fig. 3). After a few times some contained water in the pot it evaporates changing its state (from liquid to gaseous); consequently decreases the really initial weight of the pot.

The pot and water are respectively assimilable to the physical system and the functional system of the city; the weight of such system (water's quantity - potful) can be considered as an expression of the level of intensity of general use of the city (fig. 4).

The flame represents the new technology that gives “energy” to the city and brings on a change of the situation in one part of it. Such change is shown in the production of a transparent image (steam) of the functional system of the city (water).

The steam is the “image” of the digital city that, going out, it determines a lowering of the intensity of use (the water's level) and a new order (configuration) of the system water/pot.

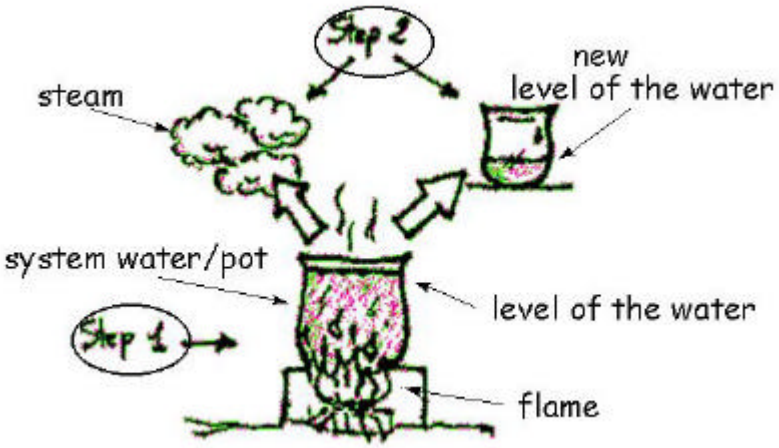


Figure 3:The analogy of the “boiling pot”

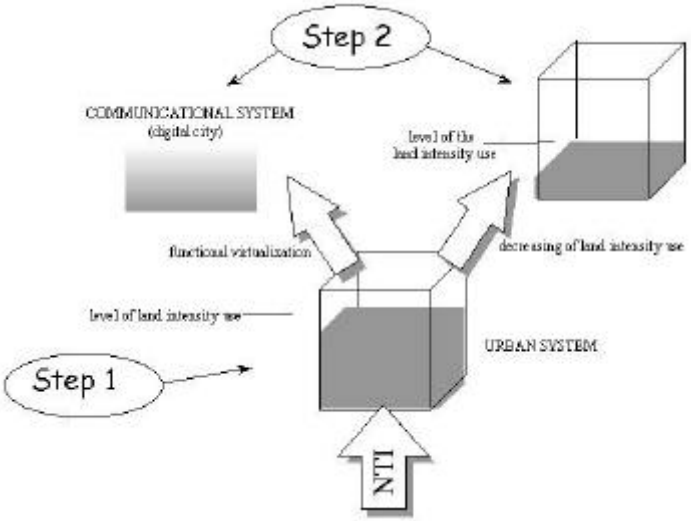


Figure 4: “from the pot to the city”

The new situation (state) of the physical and functional city will need managerial and urbanistic actions totally different from those actually carried out into effect. The new actions of city planning have to foresee interventions of government of that part of the system that has changed its state.

These considerations bring therefore to the envisage of a new order of the whole urban system in which the communicational system can act as a decreasing element of the intensity of use of the territory practiced by the urban functions located in the city.

Considering how much previously defined in comparison to the possibility to appraise, for every urban site, the potential virtualization of the located activities is included importance to deepen at last this approach to set new procedures for the town planning that have to include the processes and the products of the technological innovation inside its own procedures.

4 M.E-TROPOLIS AND MAN

Inside the M.E-tropolis - in which the functional holdups and the social discriminations, existing in the "real dimension", are annulled by the characteristics of the net - it seems to be able to define new opportunities of people sociality and inclusion as well. In the new electronic space (or “urban cyberspace”), have to be equality, cannot exist phenomenons like the social exclusion, the social alienation or straight the racism.

But the problem (however) it is before.

Without rules and procedures for the access to the digital city there is a big risk about the possibility that technology can be shaped as a tool of social exclusion, vehicle of power for those people that know the thechnology codes of use. This risk must be deleted at the beginning by making technologies accessible and promoting the collective computer literacy. Following this way will be also possible to solve a number of social troubles that distress the real city and start up a re-humanization process within the city.

So in order to get a new humanization of the city by using NTI (and far to be scared from the “tecno-science” power) it is necessary mainly to spread the possibility to access to the urban cyberspace. This could be possible by establishing a network of locations, strategically placed in the city, that will provide physical sites for access to the M.E-tropolis.

These sites will act as points where citizens can have easy access to the benefits of tele-services made accessible by the net (Fistola and La Rocca, 1997).

In other world it is possible to envisage a network of places and containers (Access Point) strategically located inside the city that will form the physical points of access to the urban cyberspace for the whole urban community (fistola, 2000).

The access points (APs) can represent also the places for citizens to learn how to use products, systems and devices of the information society. In other words, one of the main benefit is that it will be possible for the citizens to learn and use info-telematics, innovation processes and products and therefore become able to use and enjoy the tele-utilities available on the network.

In such sites, which represent the “entrance doors” to the new digital dimension of the city, it will be possible for citizens to learn how to use ITC devices and systems and how to connect in assisted way, with the web-sites of the different urban services available on the net. The distribution and location of such access points (APs) will allow different categories of citizens to use the electronic delivery of urban facilities. Such action could happen through specific user interface, whose planning and realization, will collaborate citizens.

As noted before because access to information could determine distinctions and discriminations between citizens that possess the 'know-how' in order to enter onto the net and all the others (in particular, the weaker segments of society :- the elderly, the poor, the disabled), it is necessary:

- ?? to get easy access points to the M.E-tropolis in appropriate physical locations; in these points the citizens can be assisted in their approach to the use and enjoyment of the services;
- ?? to study the position of the access points inside the city so that they allow the minimal physical movement of the citizens users;
- ?? to provide for privileged access and free use for the citizens from these disadvantages sectors of the community;
- ?? to design access points to the digital city based on studies which define a new approach to to the functional architecture;
- ?? to get ready user-friendly interfaces for access to the network, easily used by non-experts
- ?? to specify protocols of understanding with the agencies that manage the information networks and the services in order to obtain conditions of advantage for the supplying of services;
- ?? to start up computer science and telematic schooling campaigns for all the citizens;
- ?? to prepare technical and financial incentives to favour the processes of diffusion of the virtual city functions (public and private) and the actions of regeneration of the existing historic buildings so that they may become distribution points for the services.

So the main problem is to allow an equal enjoyment to all the city customers interested in using the digital city in order to obtain specific services.

In such sense it is necessary to considere the social and cultural differences, of yield differences, the age differences, that characterize the citizens.

It is therefore necessary to act on the physical system in order to locate specific, public access points in which citizens without the possibility of a personal connection to the net, can go and obtain assistence and access to the benefits of the system.

It is obvious that such points should be distributed on a fine-grain basis, in order to reduce the movements of the citizens and in relation to the needs of the local catchment areas.

It is necessary to physically locate public access points in areas where the citizens do not have the possibility of using a personal link from their own home so that they can go somewhere where they can even obtain assistance in obtaining access. It is clear that in these cases, the access points should be located to minimise movements by the citizens and that consumption areas and surfaces for costs and benefits can be predicted.

We could imagine three types of structure (fig. 5) according to a precise hierarchical spatial arrangement. The structure of consumption areas could be considered defined according to the concept of "neighbourhood units". Such areas could be defined as "Digital Neighbourhoods" (DN) which represent access and assistance centres where there are a certain number of connected positions and peripheral networks are available to citizens. Each DN has its own site on-line and is also accessible to every consumer at home who is registered at the site and has an electronic PO box on the server of the DN.

At the hierarchical and spatial level, there are centres which are immediately superior to the DN to which they are connected. These centres could be called "Tele-Districts" (TD) and relate to the community teleservices described by Lars Qvortrup (Qvortrup 1992) predicting areas of consumption throughout the whole district and they are organised in a different way compared to the DN described before.

The TD, as well as allowing access on line, also supply directly to the citizens a series of utilities for functions, such as tele-medicine (teleopinion) that predict the use of special equipment to be transferred to the functional (physical) site according to consumer data. In such a way the TD will be arranged to provide spaces and stations for these types of connections.

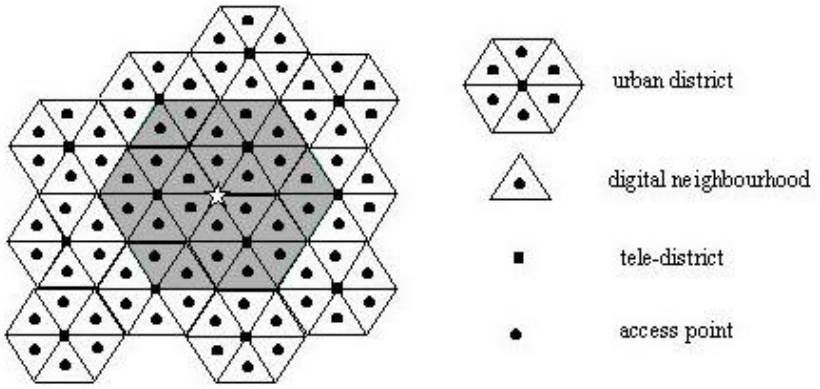


Figure 2 – The distribution scheme of the access points

Finally, the lowest hierarchical level is placed inside the DN and represent the real access point to the communication system, the back-door between the stone city and the digital city. These could be some first suggestions in order to use NTI "to remove boundaries who get it and who not[1]" and to allow to every citizen (especially for deprived classes of urban society:old, poor, disabled, etc.) to take part in the M.E-tropolis by which will be possible to build the new real "human" city.

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[1] These phrase has been extracted from an interview to the Italian Prime Minister: Mr. Giuliano Amato.