The role of technologies of the information and the communication in the sustainable planning

J. A. Hoyuela
Fellow member of the Instituto de Urbanistica of the University of Valladolid, Spain.

Abstract

The new information society or informational society generates a new setting for the urban and territorial planning. Jhon Friedman [7] affirms that the planning is basically an information management problem. In a world in which the wars, the social events, the culture or the leisure can be seen in live through the mass media, including internet, where new relations and tasks no longer require the physical presence neither the displacement of persons or means, where the information has become middle and finality of transactions[i], is necessary to present the role of the technologies of the information and communication into the planning discipline.

The ICT affect us in a twofold perspective. The ICT in the society provokes changes in the ways of occupation and uses of the territory, that alter completely the basic elements of our analysis: the nature and the city and its interrelations. By another side, is necessary to deepen on the paper of the ICT during the processes of elaboration of the plans. The new society requires the adoption of decisions in "real cheats". The flexible modification of the planning being adapted to the opportunities and to the decisions that they generates the tendencies evaluated upon the territory.

Geographical Information Systems (GIS), cellulars of last generation (DGPRS, UMTS), digital television, database relational systems, satellite global positioning systems (GPS and Eureka) and other technologies (PDA, Map Servers, Internet) are converging in a digital world where the information is capable of modifying our systems of relations and our job, being becoming fundamental factor of our lives.

1 The digital era - Walking through the informational society

"If we determine to prefer the one that is far, in detriment of the one that is nearby, we will destroy the city, it means, the rigth to the city". [6].
There are 7,388,000 Spaniards (13,4%)[ii] connected to Internet. It is unthinkable the topography without help given by the GPS. The big TNC base their force on the remote control of the centers of production from the different markets in real time with the help of the TICs. The prices are regulated by global markets independent from to the actual cost of the production with the guarantee of transport and logistics systems. The religion and the ideas are spread simultaneously, ubiquitously and immediately through the Internet. The intelligence centres control the messages through the net like example of the lost of freedom that it supposes its use.

In the world of the net the important thing is the capacity to select, to analyse and to apply the data that are relevant inside the disorder and the digital chaos transforming the information in knowledge and this in productive value. Therefore, the handling of the information more than its possession is becoming an inductive valor or indicator of wealth. The standardization takes place through common visual languages, through digital calligraphies that begin to nest in our subconscious (windows, icons, etc...) and that they lean on a better technical and commercial structure. They also allow the globalization and mundialization of the "informational phenomenon". The cultures are made of forms of communication. It cannot exist, it should not exist, a separation between reality and symbolic representation, between space and language.

The phenomenon leans on in the construction of a new temporal cycle defined by the use of the virtual services as Internet. A time with cycles of renovations a great deal more short, time of the inmediatly, the interactivity and the ubiquity where the information prevails in "real time", the "trip in direct", the interaction through the breakup of the frontiers between the public and that the prived, between the tomorrow and the past, among that prohibited and the vulgar thing. The dromologie substitutes to the temporality, the career and the acceleration at the historical time (glacial or sun time[iii]). It paradigm are the dragsters where it no longer cares the traveled space or the time passed but the acceleration, that is the metaphor of Internet. And that growing integration between minds and machine, technologies and users, included the genetic investigation (the DNA) they are erasing that witch Bruce Mazlish denominates "the fourth discontinuity", the distance between the human thing and the machine.

In this chaotic globalization the speed, or aceleration, is born with the necessity to incorporate the information in real time to the produtivity processes ("Zero Latency"). The information proliferation is demanded as a new form of work denominated business ecosystems (businessecology) based on the development of monofuntional nets, absorptions, collaborations, etc ...and where the tendency is toward the specialization in the processes and the collaboration of multicompanies.

The control of the information it is the guarantee of the power. The censorship is no longer based on the control of the access to the information but in the saturation, in the noise, in the indifference, in the interference, in the babelization, in a way to be where "everyone speaks and nobody is listenning". To solve it researches in the information tecnologies, National and International agencies, companies and other means have begun to speak of metadata, or "data of the data" that will take charge to put in order when picking up systematic references (it climbs, units give measure, precision, source, validity, methodology of elaboration, cost, author, etc.) about the associate information. The informational process is filtering at all the levels of the human activity (leisure, work, religion, public administration, purchases, sexuality, etc.) being organized in virtual communities here the danger is the isolation, the cocoon effect of reaffirmation of myself. This effect foster the globalization, the cosmopolitanysm and the nets but with the constant danger of the concentration, the oligopolío, and the creation of a certain isotropy of spaces (we lost the specialization of the spaces). This phenomenon has advantages, as the ubiquity, the descent in the necessities gives by mobility, the freedom. It also has inconveniences as the tendency to confuse the problems and the vital aspects where the variety and the heterogeneity have a great value.

Internet foster the explosion of the informational economy. A main part of the transactions they are not regulated, the economies come closer, the concurrence is universalized and a bigger productivity is demanded on the traditional processes to be able to be effective in that new market. The control of the information continues itself being oligopolist. It is not open to the productive forces that however suffer the sways of its decisions. Equally, the criminal economy (piracy, technological crimes, pornography, etc.) it grows in a matter never know until the time. The lack of pertinent legislation doesn't favor the control of this information.

2   The place, the city and the territory - Transformations toward a dual space

"The technology and our capacity of prediction they have transformed the world, even opposite to the adversities more difficult to confront" [1]
The new world space wich is configured under the presence and protagonism of the ICT is characterized by its capacity to organise the contradictions of the modern world, the local thing and the global thing, the development and the suitability. For it we are developing new emergent patterns of establishments that suffer, nevertheless, a permanent evolution[iv]. In the book "the technopolis of the world" [8], Castells speaks about the step between the complex no - planned (like Silicon Valley or the highway 128 give Boston) to the new tecnocitys that are the result of the technological, scientific and academic multinational collaboration inside a consolidated metropolitan area.

The intermediate spaces have had diverse consequences and expressions. The Cities give the Science or arisen complexes of the scientific investigation without direct linking with the own productive processes. As the oriental

countries like Akademgorodok (Siberia), Tsukuba and Kansai (Japan), Taedok (Korea gives the South) they have guided after diverse problems their investigations toward more applied fields coming closer this way to the company and the profitability of the I+D. The Technological Parks try to put order in the promotion of the innovation and give the knowledge in the productive and managerial development. For it is promoted the planning, the public patronage and the stimulus of the public administrations in a context of academic collaboration and university student. Highlights Sophia Antípolis in France or Cambridge in Britain. Programs of news tecnópolis like instruments of regional development and industrial decentralization as the programs of Japan and Korea they have also been developed with success

The fact is that they are no model involved inside the traditional processes of urban or territorial development. The industrial technological metropolises that don't make more than to adapt the innovation and the technological development to the traditional development (decission centres, productive infrastructures, etc.) have a solid and varied development in these cases we found Tokyo, Paris and London and a recent expansion in cities like The Ángeles or Munich and a continuous search gives alternative in cities like New York or Berlin. This context gives to potentialize the urban and territorial synergies of the spaces that surround us it is the one of the biggest guarantee of success. Through it one arrives to the multitasking polis or tecnocities, the paradigm of the new informational society.

A model is consolidated where the cities system continues having a similar distribution to the system of the industrial revolution (except for strange exceptions). Certains specifics parameters became necessarys in the new economy as the conectivity or level of development of the regional and national infrastructures; the capacity of economic leadership of the civil corporation in general and the administrations in particular; the security of the nets (encryption, legislation, etc.)[v]; the human capital (education and integration among I+D) and the social acceptance of the electronic trade they are the main variables for the determination of the strategic position of a certain space.

In that way, a new space, the flows net are been building [9], where a new type of relationships are coming to conform a different form to conceive the transactions, the economy, the leisure, the planning and any other human activity[vi]. A physical net (telecommunications cables, satellites, antennas, etc.) and logic (Internet, communications protocols, contained multimedia, etc.) that interation with the polisemic real world.

This net is flexible because it allows the electronic alteration of information from multiple positions contained in its nodes. It is a change process that is not only technological, like many affirm, but it affects to the perceptions and representations that we make ourselves of the space and the time, and it generates a new framework for the social relationships. To that space, Javier Echevarría calls "the third environment" [12]. A space that separates us, highlights us, of the real or natural space that surrounds us in a escepticist and nihilis attitude. ICT regarding the reality that surrounds us but that in turn he has the advantage to be controlled by ourselves.

In it facades our constructions are substituted daily by new interactive screens that allow us to navigate until hidden places even for our hosts. The hierarchy disappears, the order comes undone and the frontiers, existent even in the physical world, they become more limitless ...information is always traveling. And those frontiers defined physically and legally where the space was organized in polis and domois, cities and homes, with a functional and administrative hierarchy that delimited the intimate thing, that deprived and the public thing is being substituted by an only world, global concept, the WWW where the differences are difficult to define. The levels of privacy are defined in logical concepts, before physical. The structures or levels are: extranets or private webs outside of the limits of the physical net; intranets buids like private webs inside the physical limits of the net or internets that open their contents to the public in general without any type of limitations.

The city derivated from these informationals and ecologicals processes is characterized by the concentration of capital and of flows in the central areas and for the invigoration of the processes of degradation on these obsolete areas that also become places for investment, for operations of real state requalification to half or long term continuing or supporting the traditional processes of degradation and social segregation of the space. This process, incipient in our European cities, and decisive in the American cities (especially in the biggers like New York, Sao Paulo, Mexico, etc.) he will be surely the main actor of the future stock on the central areas[vii]. The historical centers and the areas of the immediate periphery with good accessibility and communications with the rest of the traditional decision centers will be recualificated. Is the place where the flows of information and of capital take place.

The means, the education and the necessary culture should be predisposed to approach an investment of the expansible processes and a turn to the processes of transformation. Recovering the securities of the traditional central city, if bound no to the productive activities, if to the new space of the leisure and of the free time gotten by the systematic application of the new information and communication technologies and valorizing the projects of quality and excellence that favor the integration of the areas degraded in the immediate periphery of the central city.

3   Information and communications technologies

Around 700 BC the alphabet was invented and it triumphs the society of the Liturgy[viii]. A society whose fundamental element is the book and whose diffusion depends of the roads infrastructure. It causes that the information is bound to the topography, the accessibility and the domain of the same ones for the man This form of sequential knowledge, nested and enclosed (with start and end) transcends until our days and frame the paradigm of the knowledge, when it is structured in agreement to its own formal definition and of the communication. The telegraph inaugurates a new more versatile and quicker frontier that any written transmission. Often, the radio, for the first-time, wide the geographical environment outside of the limits of linear infrastructures connection systems

aplying the repeaters wich acquire its cover according to the topography. The
television is one of the great revolutions in the communication. With the
introduction of the image in the world of the information systems it begin the
digital technology of the future. The telematic and the nets, as Internet, they
depend of an infrastructure of physical and logical systems but they connect
places located all over the world for the exchange of information. The satellites
make disappear the barriers and the space limits practically and they get the
ubiquity of the digital fellow. The third one power to be able to gives the
stocking it is increased with multimedia and interactive TV. Randomly, personal
and with a high quality it supposes the definitive revenge to the alphabet and it
supposes the disappearance of the liturgy.

From the total dependency of the topography to the virtual time, the
evolution of the mass media it has been the history of the attainment of the
interactivity or interaction with the means and the independence of the physical
one[ix]. Today we are attending a world without barriers where the information is
portable to any place in real time, ubiquity and contemporarily. The evolution of
the interfaces that it will culminate with the assumption of the interactive digital
television, it will suppose the total democratization of the access to the
information and a new concept of accounting participation and communication
of the individual regarding to the society that surrounds him[x].

But the important thing is to happen of the macroinventions
(communications for satellite, operatives systems, Internet, etc.) to the
microinventions (Information Systems for the Planning, reader of human
genome, robot programming , etc.). A thing is WWW and another a portal of
sport slippers, the micro one they are the opportunities that we should look for
for the planning and the rest of our daily activities.

The ICT or Information and Communications Tecnologies are a wide
concept of new consolidation that is defined as those that allow the acquisition,
production, storage, treatment, communication, registration and presentation of
informations in form of voice, images and data contained in signs of acoustic
nature, optics or electromagnetic. Constitued for the technologies as regards
communications, computer science, audiovisual systems and industrial
microelectronics are united around the digital convergence.

The communications are classified by the type of sign (acoustics, optics,
radioelectric, etc.) or for the position of the originators (terrestrial, etc.) in
multiple varietes. The computer area is a science or discipline that is in charge of
the construction and design of computers and its components (hardware) and
give the programs and necessary data for its operation (software). It has evolved
happening from the macro-structures to its sectoral incorporation in all the
aspects micro of the daily life as the domestic works, the writing, the personal
communications (email), the purchase, etc...

The industrial microelectronics is based in the search of the improvement of
speed, functionality, integration, energy consumption and cost of the transistors
that conform the circuits and chips of the hardware systems of the computer
science (purely computer hardwares and all type of outlying). The digitization
consists basically on the conversion of analogical signs of diverse nature in

binary codes (0/1). Multimedia, as synthesis of the digital information, is defined as the concept that only combines in a medium, thanks to the digital miracle, audio information, video, images and data becoming with it the fundamental base of the communication in the Global Information Society.

The technology is necessary for the treatment of the information and it guarantees its easiness of prosecution, diffusion, storage and administration. But the main character continues being the information, like in the Scholastic time, without a good information markets, neither products neither a competitive economy exist. The database is the logical foundation of every kind of computer developments. The digital information differs and it separates from the analogical one for its quality and fidelity, its independence of the nature of the data, the flexibility for the transport, compression, cipher, communication and manipulation of the basic sources and, especially, in the drops space and economic demands for the massive storage of information.

It is the hour of Internet[xi] in every environments, the hour of think about that the message is the message and beyond the certain importance of the means the importance it resides in the content.

4   Planning in a new context

"The success of an information system it is to transform a data set into comprehensible information" (D.J. Cowen and W.L. Shirley)

In a globalized, computerized, mediated society the great emergent valor is the information. The plan in this context is an infra-structure of relationship, of bond and support of the possible continuities among the parts of the more and more discontinuous territories [3] at par that an indicator of the degree of commitment and development. The planning is deriving to a problem of administration of the information, a new more uncertain, more quick, more complex, more interrelated information.

The sustainable planning requires the integral action of the use of the mass media and information systems to transfer the basic principles that inspire it to the citizens, to make near the planning and the city-planning ordination, to generate debates around the planning of our cities in the new millennium and to foster the combined action of multiple agents in a coordinated form (favoring the readiness for example of basic and thematic information in Internet).

For it the technologies multimedia that integrate videos (superavi, dvd gives new generation), with photographic images, sounds, texts, maps, etc. should be potentialized with the target to begin to use the mass media so that they influence the execution and development of the planning of new generation. This diffusion of this information can take place in CD´ROM or through Internet.

Another fundamental aspect will be the integration of information in real time. A concept that it will come applied to the sciences of the territory by means of the use of databases in real time, Remote Sensing, dynamic Geographical Information Systems and other group of technologies. The installation will be necessarily differential in what concerns to the technology that involve the digital revolution. The lack of an appropriate infrastructure (for price, readiness,

knowledge, etc.) generates imbalances that begin to show not only in a symbolic way but through an important alteration of the commercial and productive capacity of people, companies and territories.

A planning system based on simple and geographical models that integrate objects and processes and whose raw material, the information, draw successively and interactively new dynamic, flexible and current alternatives based on decisions supported in data and analysis in real time. The opportunity is born when happening to the Plan to the system definitively interactive of planning and not descending hierarchical. A flexible plan is necesary to attempt to the multiple opportunities. The models will spread to the simplification and the selection of the significant information. But this will be interactive and it will be related. Reproducing ecological processes with spatial decisions systems support allow, through multiple simulations and processes, test and correction a good models and a suitability scenaries.

The implementation of client-server architectures as internet or intranet for the data administration developed in the phases of writing and approval of the plans it will allow in a new stage of the planning, to happen from the static system planning to a dynamic model, definitely flexible planning that will pick up and it will assume the changes so intensive that they take place in the administration and development of the general and detail planning allowing, anytime, to center the efforts in the definition of political strategies and intervention criteria for the autonomy that will give the basic graphic instrument and documentary.

The interaction of informations with diverse origin for the elaboration of multivariate and multicriteria analysis will require to potentialize the advances as regards urban econometrics and analysis cost benefit or cost effectiveness to lean on in the coordinated valuation of aspects so tuneless as the population, economy, environment, accessibility or quality of life.

In counted occasions it has been used Internet, or other information technologies, for the public participation and the diffusion or publication of planning information. However some editors have understood the potentiality of these systems. We can classify the sources of the territorial inventory in three big groups: real and visible objects (basic cartography), real objects but without representation strict physical (derivative cartography as the geologic one) and purely instrumental objects associated to proposals of planning that don't necessarily obey real objects (thematic cartography according to the law of normalization from the year 1986).

One of the biggest pending efforts it is that about the normalization that includes the capacity to solve the inequalities among basic formats (operative systems), platforms and structures of files. The Open LSD Consorcium OGC composed by international agencies and commercial enterprises with economic interests in this field, they have joined their efforts to arrive to the definition of international formats of space and aespacial information. In many occasions the compatibility would go by the definition and integration of certain standards (fundamentally formats of data and supports) inside the cartographic general culture of this country or for the development (as indeed one comes taking place)

of specific SIG and of free diffusion for its use in determinades communities (GRASS in Brazil, etc.). but mainly it is a problem of organization and of assimilation of the new technologies in the processes of production and administration of the planning and in the productive processes in general.

Systems of filter and selection of the information, searchers, nested portals, groups of news, working groups, etc... will be able to work quickly and effective when we systematize the use of these new technologies in the writing and elaboration of the planning. Dynamic Systems of prosecution of the information (metadata, knowledge systems and semiautomatic prosecution, etc...) they will allow to know the structure, the validity, the scale, the precision, the team of development, the cost and other fundamental data that will allow us to select the information that interests us and to discard the superficial information or capable no for our ends. They will also allow to the planning to respond efficiently to the processes of socio-economic transformation that it influence in the planning of the equipments and in their space distribution or the control of the indexes of saturation uses in certain areas (p.e. the hotel uses or tertiaries in the central areas). These transformations will be able to come on a new society, informacional, mediatic, idler, flexible and worried by the environmental aspects as another fundamental source of the quality of its days. A more dynamic and needier society to obey the world changes quickly in the stock markets, of capital and of work more and more globalizated.

Endnotes

[1] "The means is the message". Marshall Mc Luhan.

[2] According to data from the AUI, Association of Users of Internet. The history begins then in 1996 we are assisting to a social revolution of world reach and whose acceleration is continuous.

[3] The geologic time, time of the nature and of the ecology and The time that obeys the solar, up-to-date cycles and at night.

[4] From October 1996 to October 2001 has spent from 27% of users connected homes on the total to 60 current in a constant process of " homerless" of the Web. The work, the University or other accesses that began before have not modified the number substantially it is connected by what their representativeness is being smaller.

[5] RSA is the encryption system by means of public and private key that the NSA (National Security Agency) it incorporated as contribution for the improvement of the privacy and the security in the net although indirectly to the market for the fear to its use for ends licit no.

[6] "...each WEB page is the facade of a building of Telépolis, with its courtyard entrance, its stays (public and private), its windows, its files, its living rooms, its galleries, its laboratories and its offices. The telewindows and the teledoors that

it connects us to the global city pass to have a fundamental importance for the users of the net" [12]

[7] [13] In the century XXI (says William J. Mitchell) the new high speed infrastructure of digital telecommunications will reform the urban models who arose from the nets of the transport, water supply and retreat of garbages, electric power and telephone of the centuries XIX and XX

[8] "The communication is the best and the worst of the things" (Esopo)

[9] "As the innovation it is permanent, every day we get up a bit more ignorant and more defenseless" [11]

[10] To inform is to govern ...the root of the cybernetic word is ciber or government ... the density of information (guarantor of the informacional balance) required in a surface area critic it is the one that allows to discover the possible roads to harmonize the local interests with the vectors of the modernity [10].

[11] María Del Carmen Villar, of Oracle Mexico: "Internet modifies everything; we are inmersos in a cultural, scientific, economic and commercial change, where the database charges importance and becomes a key element to generate business"

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