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## Planning for real: ICT as a tool in urban regeneration

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### **Abstract**

One of the major worldwide issues in the informal settlements has been spotted in the absence or weakness of community awareness. The problem can be analysed through different perspectives, related to security and social behaviours, environmental care and energy consumption. In such a complex scenario, it has been considered that one of the biggest difficulties for the planning units of municipalities in metropolitan areas, who deal with illegal and marginal settlements upgrading projects, is to face with frictions and resistances in some degree to their decisions, projects and actions. In order to increase the awareness of citizenship, ICT can be considered as a revolutionary support in this context. Low cost and friendly tools could help to upgrade the educational level of low incoming people, opening the communities and increasing the sense of belonging to a urban context as well as a neighbourhood. Digital democracy through digital inclusion and e-learning can be aimed in order to let citizen know, participate, share, improve or criticise projects and actions.

The paper reflects on a project submitted by the Politecnico di Torino (Italy) and the Universidade Federal do ABC (SP – Brazil) to the Italian Ministry of Foreign Affairs and the Scientific Research Ministry of Brazil, whose objective was to provide technological solutions for digital inclusion within the favelas of Osasco (SP).

*Keywords: e-democracy, participatory processes, urban planning*

### **Introduction**

There is no questioning the fact that the metropolitan areas and their regeneration as challenge are still an increasing enormous question mark at the start of this Millennium. If we look at the phenomenon with an historical perspective, it is clear that we are currently paying the price of the effects of two overlapping causes. For a long time, the phenomenon of actual urban grown was not fully accepted, and to refer to the city only as a “legally recognised” entity led to the explosion of its urban alter ego – the illegal city; and while we have been unable to prevent this dramatic explosion, it appears clearly easier to manage if taken into consideration from the outset. On the other hand, the global economic conditions which the civilised world has consciously shaped, have led to a frightening acceleration to the phenomenon of the ‘dual city’. Today, more than ever, increasing numbers of people move to the city, worsening the conditions that they almost certainly find there and help to intensify. For those dealing with today’s urban phenomenon in these terms, in addition to the difficulties posed by the issue, it is also important to consider that a certain degree of neglect has been inherited: generations of planners lacked the capacity for farsightedness, and most of the results obtained are often undermined by the advancing rate of urban influx.

According to some authors (Payne 2008), it is no longer worth trying to disincentives the great rural masses from moving to urban realms, just as it is hopeless thought to consider new strategies for receiving everyone. Rethinking the city, rather than “cleaning it up” or closing it off.

We must give merit to many governments, institutions, professionals and people directly involved or with the farsightedness to understand the extent of the problem, that, day by day, their race against the schizophrenic city gets better in terms of time and methods. But as we already said, the phenomenon is accelerating so fast that it requires not only more direct energy, but also new ideas and even a few dreams.

All too seldom do we hear the contemporary urban scenario referred to in terms of scientific innovation. The emergencies of the former often leave no time for the laboratories of the latter. However, those that work in this area are increasingly aware of the fact that soft technologies can contribute to change, as well as giving support to or preventing unpredictable outcomes for those hard, more visible, more obvious and more expensive interventions.

### **E-democracy, e-planning. E-quity?**

In a work published posthumously, Kevin Lynch (1990) finds the causes of the abandonment of places, vandalism and environmental carelessness, linking them to the incapacity of individuals to recognise these places as such and as their own property. Today, the phenomenon is visibly considerable, and there are other reasons for its existence other than those outlined by Lynch. Nevertheless there is no doubt about the relationship among the use and future of places within the city, the governance systems and the spaces design and planning.

In the period that saw the birth and flourishing of municipal cities in Italy and the Hanseatic cities of Northern Europe, the shape of the city, its services and thus its spaces were the result of demands put forward by the community. Arcades were the spaces that the community requested as public semi open shelter protected from the elements during trading and networking; the town hall was the building where the community's meetings were held<sup>1</sup>, once the church became place with too many politic implications.

In the contemporary scenario, it is easy to state that illegal communities are not recognised as integral part of the community at large, but that they try to act as a city within the city. This is a controversial position, given that, for many years, they were left to their own devices, allowing them to develop a sense of independence from the community at large (the municipality) and promoting forms of self-governance.

It has been recognised that one of the greater problems that cities face today is the degree of awareness that inhabitants and communities have of places and spaces<sup>2</sup>. City governance has a decisive, strategic importance precisely because it introduces the idea of two-way processes, as opposed to government, which involves a top-down process.

It is clear that one of the major problems that we find today in the government and upgrade of illegal settlements lies in the difficulty of sharing the decisions made about space. From the point of view of sustainable communities, this could also be viewed as a positive signal: compared to the consolidated city these communities are much more careful about their space, they defend it – obviously – with more determination, and are generally less inclined to accept changes that do not come from directly within.

It is important to remember that these communities often have a high percentage of honest families, fully committed to their work and their education, striving to improve their social conditions; on the opposite a fewer number of individuals involved in anti-social behaviour. The latter usually hold very strong positions in their community (for obvious reasons), and are clearly resistant to any change, precisely because improvements to the physical conditions of the settlement would undermine their illicit activities. Decisions, plans and actions undertaken in the community at large are carefully assessed by the “parallel government” structures within the community, and are often slowed down or obstructed by gangs and outlaw individuals.

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1 Cum-munis in Latin means “engaging” “sharing”. All words with this root in Romance and other languages maintain the original meaning.

2 The Egan Wheel for sustainable communities.

In such a scenario the participation in the decision-making process has led in many cases to positive results in terms of opening up to change in the community space: although this is still a very controversial point, sometimes the use of force has been the only alternative to start regeneration process (OECD 2001).

### **IDT – Information Democratic Technologies**

It is clear that any effort towards propagating knowledge to increase the level of self-awareness in the communities must carefully consider the tools that convey these ideas. ICT can contribute to facilitating these processes for a number of reasons which are not always clear. Let's try to look to a partial list of them.

The farmost obvious and evident feature of ICT is the speed with which it manages to disseminate information. The propagation of information is related to the network structure, the main element of ICT along with the physical device involved. This multi-network structure is further enhanced by the variety of devices that are typical of each network and the differences between the individuals that use them, so that anyone can be reached in a short space of time. Today, the propagation of information follows similar models to those that describe contagion via infectious disease. Along with speed in terms of the spread of information, there is the speed at which information is upgraded. We should talk about the updating speed of information and the speed those reach users. If sent via digital network systems, any data can be modified and redistributed in real time from the moment of its variation. And in many cases difficulties in governance are caused by the time gap between decisions, the sharing of information and feedback.

The costs of the propagation of information through the use of ICT are one of the controversial aspects of the digital debate. On one hand, it is important to note that, compared to the traditional media, there is a relatively high initial access cost involved in any structure that produces, handles or spreads digital information. However, this is only partially true if we consider the number and scale of the events involved. Any digital system may be used to propagate infinite amounts of information: today a book can be reprinted an infinite number of times without the cost of paper and ink, that in some respect is one of the important bits of the digital paradigm and its changes. More than this, today's book hardware (cover, pages, ink) is suitable to deliver more than one book: physical dimension has been detached from information.

The ICT systems can serve small communities in the same way as traditional systems were, with a individual or communitarian approach.

Lastly, the devices can be used for other purposes – to follow the analogy set above, this book can also be a television, a calculator, a telephone, a blackboard, a training workshop, an association. And even a town square.

We have already underlined the importance of these tools at a general level, not only during information production, but also for the spread of those. Looking more closely at the use of IT in the planning-related information environment, ICT allows multi-modal, synchronous or selective representation. As in all sectors related to urban planning and design, various areas of knowledge converge, as do different forms of language and different methods of interpretation. Representing a city on a map to communicate variations to its citizens may not be the most appropriate form of language. Three-dimensional models, photorealistic rendering, virtual reality and augmented reality certainly encourage individuals to pay more attention, to feel engaged and perhaps to take an active role. These multi-language representations can always target varying levels of education in the audience, or their cultural values, just as they can differ according to the type of content, or can be converted into options for a more in-depth reading.

In addition to multimedia - meaning the multiplicity of languages and targets - some tools provide the possibility of simulation. A representation can generically refer both to a state or a process. But more specifically it is the very process of territorial transformation that leads to major conflicts in the built environment. In many cases, the community is in favour of the result, but the absence of instruments to represent the process in an effective

way puts the outcome of the negotiation at risk<sup>3</sup>.

In addition to the reasons for introducing ICT to spread the outcomes of planning, it becomes strategic to offer anyone the possibility to react individually or as a group, in person or anonymously, with criticism, comments, suggestions and impressions. ICT has basically transformed our way of communicating over the last 5 years. Blogs and social networks – and all the methods and devices used for interacting with them – have opened the possibility for anyone to participate. We are all too often used to considering these systems of communication as the privilege of the richer strata of society. In fact, we should ask ourselves to what extent this is an image created by the communications market to achieve its objectives. A computer with an Internet connection used collectively with access via an identity card and password should not pose great problems today. And mobile devices real costs are cheaper and cheaper. So really today the connectivity cost today is mainly a matter of strategic market decision and politic standpoint.

Democracy can be achieved via a process whereby ICT gives everyone the opportunity to observe and speak. It later becomes the responsibility of those who govern to satisfy everyone (Kingston 2003).

### **Two examples: INTELCITIES and BOP Projects**

The INTELCITIES<sup>4</sup> project is a Integrated Open System City Platform that aims to create a new and innovative set of interoperable, e-government services to provide information to all citizens and businesses about all aspects of city life via interactive city-wide Internet based applications. The multidimensional databases ensures flexibility, aiming to provide more agile governance to enhance citizens' rights in urban decision-making via advanced visualisation, forecasting, simulation and sustainability evaluation of re-development.

Designed in such a way the project was aimed to help Local Authorities to develop more efficient city management by integrating services across them and regional and national government agencies, utility and transport system providers, non-governmental organisation networks and citizens (Deakin 2009). But important in the perspective of illegal settlements, INTELCITIES aimed to enable citizens to play a far more participative and inclusive role in city planning via more reliable city modelling, predictive planning, and advanced visualisation technologies, addressing poor quality information (Curwell 2005).

The “Bauleitplanung Online – Pilot” (BOP) project<sup>5</sup> aims to transfer the process of formal participation in urban planning to the internet. It employs an online participation platform to transfer the offline process of formal participation in urban planning to the web. The project, commissioned by the City of Hamburg set as goal to identify the requirements, wishes and expectations which all involved parties have towards an internet based participation process in urban planning. The process is more efficient, cost effective and more sustainable (no prints, no maps and hard copies deliveries using a webGIS).

The transparency and accountability are enhanced because the whole process runs in one end-to-end system with no discontinuity of media.

### **Osasco, Brazil, The “wired favela” project**

In Brazil alone, more than 7.2 million families live in favelas, of which 5.5 million are in urban areas, particularly São Paulo and Rio de Janeiro and, as already seen, in the most important cities, the numbers are worryingly on the increase. A number of people comparable to the individuals who today live in Rome, London,

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3 See the videos by Squint/Opera for Bradford-UK, Jeddha-SA, Copenhagen-DK, [www.squintopera.com](http://www.squintopera.com)

4 <http://intelcities.itl.gr/intelcities>

5 <http://www.bauleitplanung-hh-lokstedt56.de/>

Paris and New York.

Osasco, the area put forward as an experimental case, is a peripheral municipality situated within the metropolitan region of Sao Paulo, and extends directly from the capital, with a population of 700,000 inhabitants and an extremely high population density (93 inhab./ha) despite the quality of the environment (0.62 m<sup>2</sup>/inhab of green area). In Osasco, 200,000 people live in 170 favelas or in areas with huge urban decay. Owing to the morphology of the area – a steep slope of a hill occupied by the Mata Atlantica – which made the area difficult for any “legal” settlement, the Colina d’Oeste has quickly become the largest favela in Osasco.

The Politecnico di Torino, through its Research and Documentation Centre in Technology, Architecture and Town in Developing Countries (CRD-PVS) has, in the last 4 years, been involved in redevelopment projects of the Colina d’Oeste – an area of 310,000 squared meters – where about 10,000 people live in conditions of extreme precariousness, with a low level of schooling, mostly young (55% are 16 and under).

The action - which has so far been conducted in collaboration with the Prefecture of Osasco (and before that with Santo André-SP), following cooperation agreements with the Municipality and as part of “Cento città”, the decentralised cooperation project with the City of Turin - was geared to provide services aimed at redeveloping, designing and creating public facilities and achieving the urbanisation and post-urbanisation of central and marginal areas. Alongside this, space was given to training in planning and research skills for students on the CRD-PVS postgraduate course in Habitat, Technology and Development, with the consequent creation of professional opportunities.

### **The “Wired Favela”: aims and methodology for an e-democracy experiment**

The Municipality of Osasco, and particularly the Secretaria Municipal do Trabalho, in accordance with federal directives, recently began a successful public policy to create CDIs (Centres for Digital Inclusion) in marginal areas and favelas.

The issue of digital inclusion is closely related to that of social inclusion, economic development and reinforcement of citizenship. The Brazilian government, via the Ministério da Ciência e Tecnologia, is at the forefront in “digital democracy” policies and many projects have been set up using ICT to improve the conditions of the more disadvantaged sectors of the population.

The general aim of the “*Favela Cablata*” (Wired Favela) project, proposed by the CRD-PVS of the Politecnico di Torino, was to continue collaborating to increase the scientific knowledge and capacity for technological transfer in urban redevelopment projects, emphasising the aspects of social and environmental sustainability, through the technologies of social inclusion to construct an “innovative right to citizenship”.

The project bid has been submitted as part of the Italy-Brazil Science and Technology Cooperation Protocol and is twofold: to investigate the use of ICT to educate and democratize at a low cost those sections of the population living in difficult social and economic conditions or with housing and social emergencies underway, with particular emphasis on sharing instruments to plan and transform areas occupied by the community; on the other side, to develop and evaluate a set of suitable technological solutions for the creation of centres for digital inclusion (CDI), which, in terms of the energy consumption, the materials required for their creation and the resources needed for their implementation, take into account the type of user ship and the function of the structure and service.

The project’s mission is thus to promote access to ICT, one of the privileged instruments for discovering, learning, communicating and work, and, at the same time, to contribute to the social inclusion of closed communities and those sections of the population, particularly the young, whose social and economic situation delay the spread of new technologies. In this sense, the result will help to strengthen the action of the government and local bodies, in terms of digital inclusion through the development of assessment instruments and the management of actions.

The project methodology – defined on a two years basis – has been shaped in order to accomplish with an experimental on field research project, where the timeline can be visibly different.

The starting action has been set as a survey [followed by the selection] of tools and hardware matching with the specific aims and objectives: built environment related data sharing, digital education, participatory public access to regeneration and transformation processes, fitted in a low income marginal urban context.

The definition of the management asset fitting with the already given CID (centre for digital inclusion) organization, related with the socio- economical structure of the settlement: in Osasco – Morro de Socò one CID has been set up in late 2009 nearby the community centre at the gate of the new housing development (*portais*).

As the CID has been opened to the community several tools have been created or shared with the community: a GIS web based application with interactive options for property data retrieval and general master plan information (*plano diretor geral*) along with an asynchronous enquires system to give citizens the ability to express themselves or ask for clarifications or help. It might appear that such tools are more than common in any urban context today, but it is important remember the context we are dealing with.

The following stage in the proposed methodology as been defined as the definition and application of indexes for the ongoing evaluation of the process. The project success need to be evaluated on the medium-term duration, considering direct indicators as use and accesses, quantity and quality of interaction with local planning unit, quality of service provided to the users; but also indirect figures can be used as indicator of success as the level of engagement of citizens as active part in the regeneration process, duration of single phases of the process, In a wider and longer-term perspective, the project's objective is also to strengthen and experiment the use of ICT in middle-school, high-school and vocational training, highlighting both the quality and fragility of e-learning systems when used in marginal urban areas. This evaluation leads us to consider the need to define indicators suitable also to assess distance learning.

Aside of these points, one lateral but not marginal aspect is more focusing on the hard side of the experiment: the selection of specific functions and low cost suitable building technologies and the design of a CID type, flexible enough to be installed in all the 170 *favelas* situated in Osasco, that must consider the highly fluid situation of such a urban contexts as the marginal settlements are.

One final bit of the project is related with the training for municipality local staff in the management of the integrated process, the potentiality of digital tools aiming to increase the marginal citizenship awareness and how to develop furthermore new usages an applications; training for master CRD-PVS students through the construct of the CID pilot example in Socò.

## **Conclusion**

This paper considers and analyse the use of ICT as useful and powerful way to deliver and share urban planning and urban regeneration information not as *per se*, but as innovation in the marginal urban settlement. ICT can be helpful to help the regeneration process of such areas, enabling marginal citizens to participate to the processes and enhancing their awareness, contributing to increase the general level of democracy and equity in the urban areas.

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