Urban planning and GIS : an opposed marriage.

Mauro Salvemini
Laboratorio di sistemi informativi territoriali e ambientali - Dipartimento di Caratteri degli Edifici e dell'Ambiente -Università di Roma La Sapienza -
http://uniroma1.it/DICEA/GIS_LAB.htm
email:salvemini@uniroma1.it
Piazza Borghese 9--00186 Roma, Italy –

Foreword.

The following long abstract of a study which is still in progress is based on personal experience of the author engaged since long time in education, in planning , in computer graphics and in GIS and it is finalised :

- to get reactions from colleagues and from the GI community ;
- to a better understanding of relationships at world wide level between GIS and urban planning;
- to find new solutions, methods and topics to teach courses and curricula in GIS and in urban and regional planning.

The story.

The urban planning discipline , profession and practice are active since long time , some of us may start to consider the development of the Greek towns and some others may refer to Neolithic villages and caves, on the other hand GIS discipline is still not well established in our universities and the debate about the GI science is very active now on both the sides of the Atlantic Ocean .

The consensus is not reached by all experts , depending on which country they come from and on which is the approach to the science they have , having in mind that urban planning in some cultures is related to the sciences and not related also to arts and humanities and that the debate about the GI Science is still open and the conclusions and one final solution are far away to be achieved.

Nevertheless almost two decades ago the warm friendship among urban planning and GIS began at city authorities , university departments and public offices.

At that time GIS was named differently and the urban planning was more interested in the computation facilities offered by computers becoming always smaller and powerful , easy to programme and ,first of all, very generous in providing graphs and drawings.

Just the graphic facilities offered by the computers and the information technology attracted the urban planning since we have not to forget the relationship between the urban planning and the architectural design, as user of computer aided drafting, which is present in many professional and educational commonalties.

The CAD and model have been and still are the right words.

CAD started to supply drawings to urban planning and models ,running on computers, started to solve quickly and easily mathematical problems which during the sixties required to have a lot of punched cards processed through a batch procedure.

Things have been easy and ,let me say, very quiet until the ancillary position of the IT (CAD and models processing) towards the urban planning has been recognised and practised.

In terms of education until few years ago , starting the trend of at least two decades, no specific need of planning culture was present in curricula tailored for students specifically oriented in the use of IT disciplines applied to urban planning. The reason of that has to be searched in the fact that all IT (such as GIS) techniques were considered ancillary to the final task that it was the urban design achieved by the urban planning performed by the planners.

The colleges of architecture and engineering were offering programmes in urban planning and the contacts with the information technology and engineering departments (more popular until some years ago) were welcomed but not fostered.

The situation remained stable until the data and the their geographic address entered on the stage. The direct access to huge amounts of data, the easy addressing on the map (at the beginning the attention to the difference between the CAD and the map was not so emphasised) attracted the attention of experts to the possibilities that the availability of the data and their address with the use of some spatial techniques ,already developed by well established disciplines as mathematics and topology, could offer to urban planners and decision makers. Following this trend the intensive use of those techniques have been able to offer a very substantial contribution to urban planning practice and theory.

Since the high interest in information technology , the continuous changing in acting of the local and public authorities regarding to planning, in several situations, mainly where the urban planning was more concerned to the architectural planning than to economic and regional planning under the system approach, the two disciplines grew up having several cold contacts but never reaching the complete marriage.

The marriage could be possible but some resistances made it impossible. The problem on the urban planning side was solved by the robust establishment of planners' community that was able to absorb the minor shocks due to enter of new technologies. The urban planning stood steady based on centuries of theory and the GIS, entering in urban applications, started to find the right way to marry the urban planning although in his family some of the parents were not completely concerned the necessity and the opportunity of the wedding.

Actually the GIS family started to be wide and largely related to many people. Due to the fact of being a new technique , may be in the near future a science, a large community of scientists, teachers and professionals entered in the field leaded by geographers and IT experts.

Geography has been and is not the same in all EU countries : from a geography being part of science cluster we easily go in Southern Europe to a geography part of humanities and economics. Some Northern and Eastern countries are considering the geography as part of geodesy and topography. The panorama is still now substantially various and articulated.

GI community , a very active and prominent one, is working since several years to be recognised at research and academic level but the rather positive situation in the US of America has not the same aspect on this side of the ocean mainly because the academy is still resistant in recognising the rank different from an application to GIS and GI .

It seems to be useful to list some of the major resistances to GIS development in EU since they affect the offer of educational common programmes :
- EU still has not a common act as the US (E.O.1994);
- there is not a common effectiveness of the GIS ;
- language , procedural and availability problems of data are serious;
- absence of models about the GIS diffusion;
- standardisation and interoperability of the systems help but no solve the integration and the usability of the GIS in Europe.

On the other hand some positive aspects about the present EU situation has to be considered :
- plurality of uses;
- effort in the standardisation;
- effort in integration and harmonisation;
- challenging uses ;
- cross country borders testing and use ;
- alternate and specific uses .

Unfortunately the last mentioned aspects are more positive under the methodological aspect rather than the practical one.

The demand in the public authorities environment and in private sector of skills and personnel expert and trained in GIS started to increase as soon as the GIS was recognised as a powerful tool able to substitute some of the tasks generally performed by the urban planning and related activities. Analysis , control , management of a city are activities better performed by a GIS than by an inefficient office : this has became very clear to public authorities and is becoming to be clear to citizens as soon as the public participation increases.

The present scenario in all UE countries is that some higher education institutions teach geographic information at undergraduate level and few courses at master level are offered in a small number of universities.

Some aspects related to education have to keep in mind about the present situation of relationships between GIS and urban planning :
- there is a great demand of people skilled in GIS by the public authorities;

- the offer of specialised courses in GIS by universities is qualified but insufficient to satisfy the specialisation needs so that private companies and not only sw vendors entered in the market of GIS education;
- the shortage of curricula of higher education in GIS is monitored and on the other hand a perfectly sufficient offer of curricula in urban planning is characterising most of EU countries ;
- the shortage of teachers and professors in GIS is largely monitored;
- the consistent demand of continuing education in GIS .

The difficulties in teaching GIS /urban planning course.

Having in mind all mentioned premises , while the marriage should be celebrated in the academy, in reality the two disciplines are still separated. The urban planning is well established and GIS is differently shaped according to the aspects that have to be emphasised : informatics, semantics , mathematics and topology, data bases. But it is still used as one or more application application modules. The situation is far from being easy to manage for offering to students a robust curriculum in which the two techniques really are united for shaping the future professionals of urban planning through the active GIS . The challenge is to perform planning through the GIS. It means that planning and GIS have to cohabit sharing the same house and having the same rank.

The happy ending.

It is my personal idea that not only the marriage is inevitable but it is hoped for in the shortest time considering the usefulness of having both sciences united in solving the problems of the cities that are more and more related to the flow of information.

How is it possible ? Some suggestions for a wider discussion :
- increase the understanding of GIS in urban planning curricula;
- demonstrate how the GIS may be bundled inside the planning process and not only in the curricula;
- open up the urban planning curricula to a GIS active and intelligent presence based on equal participation of both disciplines.