

Towards a Pragmatic Neighbourhood Development Model.
Urban Spatial Information System-USIS as a decision support tool
in an automated & integrated design environment

DRAFT DISCUSSION PAPER 1

Claudio Acioly Jr.
Faculty of Architecture
TU Delft, 1/03/94.

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1. THE CONCEPT OF PLANNING

Planning is a deliberate action. It is a process in which future actions are pre-defined through a sequence of choices that aims at a pre-established objective. Thus, it is a set of procedures that implies targeted actions, setting motion to accomplish a desired and supposedly improved and new situation.

Planning is a problem solving oriented process and implies an understanding about the present and the forecasting of outcomes of the actions presently undertaken.

Based on this definition, it is possible to describe urban planning as a process through which courses of actions are selected and decisions are made in order to accomplish a better living environment. The decision making process is based on the analysis and consequently understanding of the available information and on the capacity of urban planners to forecast the best results from the choices made.

Contemporary urban planning has been greatly influenced by the British town planning postwar movement which considered it as an instrument of the welfare, an activity inherent to the responsibilities of the State which should benefit the majority of the population (Glass, 1973:50). Thus, town planning was viewed as an instrument of social policy in which governments would act to protect the public interest. This conception assumes that town planning is a neutral and scientific activity, not subject to the vested interests of powerful and influential groups of society. However, experience has showed the ingenuity of this assumption and in developing countries it showed that this neutrality is a myth. This conception is originated from the late nineteenth century utopian and social reformers, specially E. Howard and his "Garden cities of tomorrow".

This concept has greatly influenced the activities of town planning. As a result, there was a great emphasis given to urban development control mechanisms that are reflected in land use plans and legislative procedures and which are materialized in comprehensive and master plans. There was a belief that this would be the pre-condition to provide the physical basis for better urban community life. Specially among a generation of town planners who thoroughly believed that the physical environment was the major determinant of social processes. This physical determinism produced certain dogmas and paradigms in the profession of town planning and consolidated certain practices of town planning that were only concerned with the physical scenario of buildings and urban spaces and disregarded the other dimensions of the urban environment. Rationality in town planning became a synonym of wisdom. Planning was to become a scientific procedure only dealt with by those eligible for that. The outcome was a technocratic control in the process

of urban development and a great emphasis to physical planning. In many cases, it served to legitimate the position of town planners in the planning bureaucracies of the State.

It is very important to have a clear understanding of what planning is all about in order to understand its goals and the nature of the problems it deals with. However, for the purpose of this study, I will concentrate on other aspects of the planning process, those related to the procedures, tools and methodologies.

2. FROM TOWN PLANNING TO INTEGRATED URBAN PLANNING

As a result from the evolution of planning as a discipline and the subsequent recognition of town planners as professionals, a vast number of publications started to appear. Different authors, scholars, theoretists and planners were formulating planning theories and decision making models in order to refine not only the process but also the product of town planning (Faludi, 1973; 1978. Paris, 1982).

The planning process was often seen as a cycle, composed of a succession of decision steps that start at the level of policy formulation and problem identification and continues through plan implementation and plan evaluation. The latter stage materialized the cyclic character of planning which was often emphasized by analysis based on system theories. Basically, there was an unanimous concern about the limitations inherent to the rather narrow focus of the ongoing practices of town planning, reflected in land-use and comprehensive physical plans. The emphasis on this aspect had transformed town planners in land planners, physical planners, spatial planners, etc.

In 1956, Meyerson (quoted from Robinson, 1965; 1973:171) had already identified some main deficiencies in city planning. According to him, city planning fails in a number of aspects:

1. it fails to provide current and meaningful information to support rational and coherent private and public decision;
2. it is inept to translate the remote, goal-oriented master plans into meaningful and operative goal-action statements for decision making within and without the government;
3. it fails to induce the kind of forward planning at the operating departmental level that would lead to eventual accomplishment of previously adopted long-range goals and policies, and
4. it fails to evaluate the intended and unintended

consequences of previously implemented actions.

Within the scope of my study, it is relevant to highlight some early signs appointed by some authors about the need to urgently develop evaluative methods to forecast the relative social payoffs that will result from a particular planning decision and to improve the quality and outcome of the planning process, having as a precondition an integrative view of the urban environment (Webber, 1963; 1973:102).

The speed of changing which characterizes the dynamics of the urban environment was already highlighting the limitations and the shortcomings of the ongoing practice of town planning due to its emphasis to the physical aspects of cities.

Since the mid 60s, town planning practice has been through a process of reform which has basically enlarged its scope towards the notion of urban planning. The latter deals not only with the built environment of cities but also with different social, economic, political and cultural phenomena that influences the overall development processes.

Friedman follows this line of thought and broadens the definition of planning by defining it as a way to managing the non routine affairs of the city. He argues in favour of a concept that goes beyond the physical oriented activities, the arrangement of spaces, functions and activities, and above all he links the concept of planning to that of management (Friedman, 1965; 1973:212). By doing so, he introduces a fundamental idea in the discussion and contributes to a very important change in the conception and practice of planning. The idea of management brings along the concept of flexibility and implies a careful manipulation and overview of the existing potentials, opportunities and available resources such as information and availability of data, human resources, financial and material means, institutional capacity, etc. which are preconditions for rationality in the process of choosing a course of action.

Another positive development was the recognition of urban design as a specific area of professional knowledge. The separation between areas of competence started to become more explicit and the concern with the process of design and the formulation of spatial configurations was demanding the development of theories, tools and techniques that would help to refine and improve the quality of the physical design output.

More and more, there was a claim for a more comprehensive knowledge about the urban environment and the necessity to

obtain reliable information and quick access to changing occurring in the physical and social fabric of cities. Not only the scale but the scope of planning became a matter of concern, and consequently it became evident the need to develop tools to support this integrated view of urban planning.

3. FROM CITY TO NEIGHBOURHOODS

It is worth mentioning that the US government's Community Renewal Program-CRP, launched in 1959 as an amendment of the 1949 Housing Act, already reflected the preoccupations expressed by Meyerson, mentioned before in this text. The CRP was concerned with the dynamic aspect and responsive character of urban planning, with the need to generate information that can reveal the changing conditions and problems at the neighbourhood level. Above all, the CRP stressed the multifaceted character of urban planning because after all "urban renewal should not be designed to help buildings" (Robinson, 1965; 1973:185) but to provide realistic responses to social, economic and managerial problems of neighbourhoods and their inhabitants. This reinforces the trend to redefine urban planning as an integrated and holistic process that demands the dissemination and availability of a vast quantity of data information, and an effective information management procedure.

The attention for the neighbourhood level got adepts throughout the world. Its limited physical boundaries and the social and spatial identities of its inhabitants provided opportunities to resolve some dilemmas of planning. Urban planners and managers who were working in planning departments of local government authorities were provided with a workable and concrete scale to put forward some innovative actions. The neighbourhood oriented approach favoured the implementation of participatory processes and a quicker access to great amount of information. It offered the suitable setting to practice the integrated approach and to develop the advocacy planning model as well.

As Davidoff states "from the point of view of effective and rational planning it might be desirable to commence plural planning at the level of city-wide organizations, but a more realistic view is that it will start at the neighbourhood level (Davidoff, 1973).

Physical and social deterioration of inner city areas of European and North American cities provided an unique opportunity to put forward large scale programmes of urban renewal in the 70s. These programmes put emphasis to the physical aspects of the problem and tried to solve the social problems by involving the inhabitants of the neighbourhoods in the process, stimulating local management processes and supporting some social development programmes.

The Netherlands put forward what came to be called the neighbourhood approach or building for the neighbourhoods, being Rotterdam a notorious example of this policy. But the focus to the neighbourhood showed its limitation, not only because of its emphasis to the built environment but because of its limited vision in relation to what was happening in the city as a whole.

There was a lack of a macro policy view and a limited access to information about other urban development sectors that would directly or indirectly influence the programs and interventions in a particular neighbourhood. The result was that the cities were compartmented and urban planning was resumed to the physical boundaries of the urban renewal areas.

4. PRE-CONDITIONS FOR EFFECTIVENESS IN URBAN PLANNING

In the early sixties, large american cities such as San Francisco, New York, St. Pittsburgh were developing computer assisted simulation models that would provide the means for efficient decision making at the level of local government authority. The existence of a systematic collection and manipulation of information was a sine qua non condition for the implementation of these models.

In order to be responsive and efficient, urban planning would have to evolve procedures and organizational capacity in the manipulation of a multidisciplinary set of information during the process of decision making. This is the first fundamental aspects of the planning theory proposed by Faludi. According to him, every effort to go along to solve problems involve a substantive knowledge and a procedural knowledge (Faludi, 1978:162).

Substantive knowledge is referred to as the various fields of knowledge like demographic trends, housing needs, employment conditions, transportation systems, land property, taxation, earth sciences, etc. which is impossible to be detained by only one actor. Procedural knowledge is referred to as the essential knowledge and understanding for going about tackling the problem, so that the framework, the procedures and the mechanisms of the planning process is as relevant as any other type of substantive matter.

The second fundamental point is regarded to as the principle of rationality in the decision making process which means the selection of the best option for a given situation and implies "comprehensiveness" by which an adequate understanding of the nature of the problems can be achieved (Bracken, 1981). But only knowledge, common sense and understanding are not sufficient to guarantee the materialization of this fundamental point because both efficacy and efficiency in planning decisions are dependent on reliable, accurate and immediate access to information. Thus, data collection, storage, manipulation and

analysis should be looked at as an essential support to rational decisions in the planning process.

5. INFORMATION AND DECISION SUPPORT TOOLS IN URBAN PLANNING

Information should be defined as something useful and relevant in the decision making. A precondition for choosing the best course of action in a given situation, allowing a continuing evaluation of the consequences or possible consequences of all alternatives at hand.

On one hand, substantive knowledge can only be acquired and applied in the decision making process if there is a capacity to manipulate large volumes of data and information which are not immediately linked with one another. Although they might keep an indirect interrelationship and interdependence with one another their aggregation is not always simple. Let's just think about some subsectors of urban development like land market development, property taxes, demographic trends, internal urban migration and population mobility, infrastructure and housing needs, transportation network planning, urban and building regulations, earth science and underground geology, etc.

Due to its multidisciplinary character, substantive knowledge can only become available at the moment of crucial decisions if there are tools and techniques to allow its application. Both the development of these tools and the construction and accumulation of substantive knowledge are the basis for the materialization and feasibility of an integrated urban planning approach.

On the other hand, an urban planner, an urban designer or an urban manager is not capable to detain and concentrate alone these various portions of knowledge at the moment that decisions must be taken. Unless he or she can count on the expertise of others or rely on information collected through comprehensive researches and field work. The conventional process of data collection is time consuming and has been substantially improved with the introduction of computers in data processing. However, the basic nature of this method has turned the planning process inviable, specially when confronted with the process of rapid changes taking place in the urban environment.

The issue of information and its management are becoming a fundamental necessity for an efficient management of cities. It is in fact a precondition for the performance of local governmental authorities and their various planning departments. It is worth noting that recent policy documents issued by the World Bank and the United Nations Centre for Human Settlement (The Urban Management Program) explicitly recommend the

development of urban information systems in order to consolidate a knowledge and an understanding and to formulate analytical procedures of urban processes (WB, 1991).

The fact is that urban planning can only exist if there is sufficient information available at hand

6. COMPUTERS AND NEW PLANNING PARADIGMS

The development of computer assisted methods and particularly of geographic information systems and their application in the planning process seem to open new possibilities for the materialization of a pragmatic and integrated approach, allowing among other things the storage and manipulation of large amount of data and quick updating of information. The substantial knowledge about the built environment can be accomplished through the development of databases which are the pillars of any geographic information system. The substantial knowledge can be partially or totally treated as attributes or descriptive data linked with spatial or geographically referred entities.

Not only that, the GIS concepts bring new thinking methods and offer open dialogue possibilities among the various actors who play a role in the decision making within urban development processes. The quick access to information and the possibilities for computer modelling and simulations during the various stages of the planning process will certainly change the procedural aspects of planning and possibly support the development of a new paradigm in planning.

This is another aspect which my study intends to go in depth. In which way can the use of GIS tools in the planning process favour the shift from a conventional, sequential and linear process of planning to a dynamic, cyclical, integrated and participatory process ? In which way can the use and output of GIS influence the decision making process ? Does GIS play any role in the organizational structure of planning and its institutions ? If substantive knowledge means comprehensive and multidisciplinary type of information, what type of data is essential for the decision making process when plans, projects and interventions are planned in neighbourhood of cities ? What are the most appropriate methods to collect this type of information ? These are only some questions whose answers need to be further elaborated.

The rapidly falling prices of hardware and software and the development of various software programmes with a variety of capabilities make the introduction of computers in the planning process a very attractive alternative. But there are still a number of questions that need to be further elaborated. For example:

What are the effects of the introduction of computer technologies in the planning process ? Is it necessary to develop new concepts, theoretical and methodological tools in order to respond to new planning challenges that are brought forward by computer assisted tools ? Will the use of GIS and CAD systems in the planning process force the development of new paradigms in urban planning ?

Recent developments in spatial information systems revealed by the appearance of a large number of GIS programs is certainly offering a vast range of possibilities and advantages. Namely, there is a minimization of time, money, effort, accuracy, sophistication, reliability and flexibility in producing and reproducing great quantities of geographically referred information. Such outputs are detailed plans and maps, social and economic figures, charts,

statistics, urban databases, covering not only the physical objects of various scales but also a range of fundamental thematic information of technical, juridical, social, economic and fiscal natures. The accomplished knowledge and understanding about the urban environment that is acquired through GIS tools is substantially increased.

Digital data allows quick modelling and simulations in urban development processes which favour the interaction between planners and the other actors in the urban scenario e.g. the public administrators, politicians, decision makers, technical experts, planning teams, inhabitants, community builders and community based organizations, private agents, etc. Quick requests in the form of queries and responses in the form of graphic and display outputs become possible, allowing the visualization of their choices and decisions.

There is a potential role for urban information systems in the process of forecasting since it allows the integration of different types of information in simulation models originated from specific planning decisions that are based on real world's assessments. Rapid assessment of possible direct and indirect effects of planning decisions provides the chance to formulate a pragmatic, participatory and integrated model in urban planning. Alternatives can be tested and compared with other choices, producing visual and tangible images of the results and their relationships with social and economic processes. Thus, there are new possibilities for monitoring the urban development process. Tridimensional models and virtual reality images are the extreme of this technological development that undoubtedly changes the procedures and influence the decision making in urban planning.

Computers are becoming a very important decision support tool and a powerful analytical instrument. Computer assisted planning can play a relevant role in improving the management and administrative efficiency of planning departments and local government authorities in general. Not because of its capacity to process information but specially because it becomes a powerful analytical instrument in the planning process. Its most common use and the emphasis has been on analysis of the urban environment and control of plan implementation rather than as a tool for plan formulation. This study argues in favour of a new paradigm in urban planning and intends to explore its use in the process of plan formulation at the neighbourhood level.

7. THE PLANNING MODEL AND THE URBAN SETTING

Although there is actually a trend to tackle the urban problems within a city-wide perspective, this study opts to approach the problem at the neighbourhood level. A number of recent studies are emphasizing the importance of cities in the overall process of development and advocate the need to carry out city-wide policy and institutional reforms in order to increase urban productivity. This is seen as a precondition to increase the planning and management capacity of local governmental authorities. There is no doubt about the correctness of this assumption but the emphasis given to the macro levels of the urban problem is likely to diminish the possibilities for effective interventions where it is most needed. It is at the level of the neighbourhoods where people are directly confronted with urban problems, where they find ways to satisfy their most urgent needs and to develop peculiar processes to achieve better living conditions. The approach has to be simultaneous because successful interventions at the local level can be replicated at the macro level.

A neighbourhood presents in its microcosmos most of the convergent, conflictual and competitive issues and various of production and consumption processes found at the macro scale of cities. Besides that, the scale of the neighbourhood provides a workable scale to develop and to test the methods, tools and procedures which this research is basically concerned with. Any exercise of data collection, storage, analysis and manipulation covering a city-wide context would be time consuming and its further utilization in a planning model would become extremely complex and beyond the time constraints of this study.

Cities are complex and very dynamic entities and are going through constant changes which present new challenges and problems at the local level. According to Leary, we are moving towards a crisis management which perhaps means a shift from rational planning to pragmatic planning (Leary, 1989)

One of the point of departures of this study is the acceptance

that a new planning paradigm will be formulated based on the notion of pragmatism. In philosophical terms, it would reflect a doctrine and planning concepts based on its practical applicability. All the actions, plans and policies would be formulated taking into account its practical consequences rather than a theory or dogma. In this respect, the pragmatic character of the model emphasizes planning as a problem solving oriented process, and therefore a real world case study becomes fundamental for the formulation of such a paradigm.

A case study will provide the urban setting to formulate and test the planning model which this study intends to formulate. It was initially thought that for the purpose of the research, it would be interesting to select three different urban development contexts as the most suitable settings to check the feasibility and applicability of a pragmatic and integrated computer assisted planning model. The situations would differ in terms of level of development which would consequently create differences in terms of availability of information, type and importance of the information to be collected, institutional development of planning and management institutions and decision making process, and speed of changes in the physical, social and economic fabric. An urban setting in the Netherlands, Brazil and Guinea-Bissau would clearly show the disparities and differences, providing opportunities to assess the difficulties in terms of access to information; to assess which is the best method to gather information and which possibilities exist to generate information from existing sources and surveys; which data are relevant for each context and in which way the model is sensitive to specific decision making processes and procedural aspects of planning that are practiced in these contexts.

At this moment, the option tends to fall on a neighbourhood in Bissau, Guinea-Bissau where it provide us with the most critical situation in terms of availability of information. The ongoing cooperation agreements with organizations in the Netherlands, the existence of a project and a plan under process of implementation in the neighbourhood of Reino-Gambeafada and the priority position of Africa in the agenda of bilateral and multilateral organizations present very good prospects for a follow up action and possible application of the findings of this research.

The planning cycle in an automated environment.

- . DATA COLLECTION, ACQUISITION
- . CARTOGRAPHIC ANALYSIS
- . DATA ENTRY, DIGITALIZATION, DATA CONVERSION, DATA CAPTURE
- . DATA STORAGE
- . DATA MANAGEMENT
- . SPATIAL ANALYSIS AND INTERPRETATION
- . RETRIEVAL AT WILL

- . TRANSFORMATION AND SIMULATION
- . DISPLAY AND GRAPHIC REPRESENTATION, VISUALIZATION
- . GRAPHIC OUTPUT AND REPORTS

which must take into account a variety of convergent and divergent phenomena

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UD-URBAN DESIGN	UP-URBAN PLANNING	UM-URBAN MANAGEMENT
<p>It is product oriented.</p> <p>It is overconcerned with the physical environment.</p> <p>Implies the formulation of a spatial solution and a physical (re)arrangement of building and spaces.</p> <p>It simulates a reality.</p> <p>It has a very specific technical character.</p> <p>It implies a diagrammatic content.</p> <p>It has a strong aesthetic component.</p> <p>It produces a layout form of an idealized urban environment with a bi and tri-dimensional view.</p> <p>It is a product of spatial order.</p> <p>It is a graphical output.</p> <p>It has a higher intuitive and speculative character.</p>	<p>It is product-process oriented.</p> <p>It is a set of procedures.</p> <p>It sets strategies to meet some objectives and targets.</p> <p>It implies a legislative procedure that gives guidelines and prescribes places where activities and functions take place.</p> <p>It has a multidisciplinary technical character.</p> <p>It produces zoning, land use regulations, procedures, legislations and development guidelines.</p> <p>It implies a diagrammatic output with a juridical content.</p> <p>It pursues rationality.</p> <p>It formalizes instruments to articulate and conciliate activities, functions and interests.</p> <p>It has a higher rational, deductive and prescriptive character.</p>	<p>It is process oriented.</p> <p>It implies a multidisciplinary and comprehensive vision.</p> <p>It has an aspatial character.</p> <p>It is an administrative procedure that guides the development of the city and the institutions responsible for its development.</p> <p>It implies organizational and procedural frameworks.</p> <p>It implies the conciliation of conflicts and competitive interests in the development of the urban environment.</p> <p>It has a redistributive character.</p> <p>It is related to performance of cities and urban productivity.</p> <p>Pursuits efficiency in the use of resources.</p> <p>It implies financial, technical, juridical, institutional and political planning.</p>