

Land Use Planning And The Environmental Factors

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Lecture 4

Land Use Planning

Definition

Land use planning is the term used for a branch of public policy which encompasses various disciplines which seek ~~to~~ **control** the use of land ~~in~~ **accordance with** ~~the~~ **city**

–The [Canadian Institute of Planners](#) offers a definition that :

"[Land use] planning means the scientific, of land, resources, aesthetic, and orderly disposition facilities and services with a view to securing the physical, economic and social efficiency, health and well-being of urban and rural communities"

Functions

At its most basic level land use planning is likely to involve:

Zoning and Transport infrastructure planning.

In most developed countries, land use planning is an important part of social policy, ensuring that land is used efficiently for the benefit of the wider economy and population as well as to protect the environment.

Function



Functions

Architecture, urban design, urban planning, landscape architecture and urban renewal usually address the selection of

selection of building materials

impact upon landscape

scale of development

costs of alternatives

aesthetics

species

physical layout

Function

Environmental planning, will often address of development and plans the implications upon the environment, for example [Strategic Environmental Assessment](#).

At the very local level environmental planning may imply the use of tools to forecast impacts of development decisions, including [roadway noise](#), and pollution, [surface runoff](#) and [flooding](#) assessments.

Function

Because of the many disciplines and knowledge domains involved, land use planners are increasingly making use of Information Technology, such as Geographic Information Systems, (GIS) to assist with analysis and decision-making.

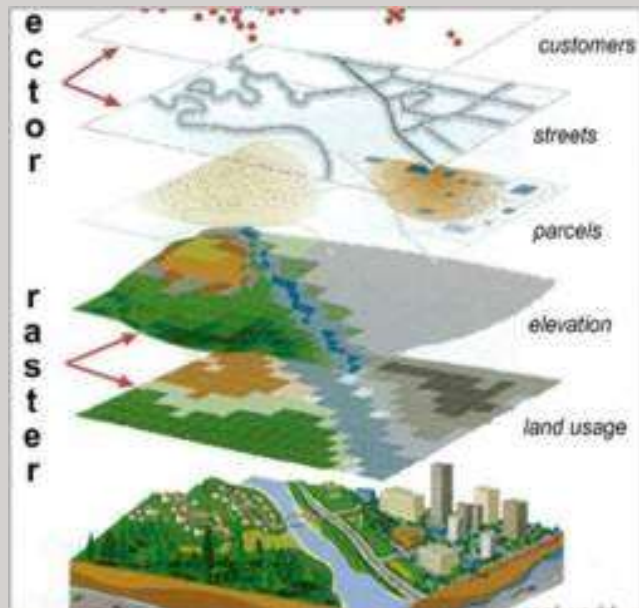
Land Use Planning

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graph TD; A[Land Use Planning] --- B[Geographic Information System(GIS)]; B --- C[Spatial Decision Support System(SDSS)];
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Geographic Information System(GIS)

Spatial Decision Support System(SDSS)

Geographic information System Definition



A geographic information system (GIS) is a system designed to capture, store, manipulate, analyze, manage, and present all types of [geographical data](#). GIS is sometimes [The acronym](#) [يُتأدب](#) used for geographical information science or geospatial information studies to refer to the academic discipline or career of working with geographic [information systems](#) and is a [كبيراً](#) large domain within the broader academic discipline of [Geoinformatics](#). In the simplest terms, GIS is the merging of [statistical](#) [مسير](#) [طائراً](#) [خلا](#) [مسير](#) of [cartography analysis](#), and [computer science](#) technology.

Geographic information System Conclusion

In a general sense, the term describes any information system that integrates,

stores

Edits

Analyzes

Shares

displays

geographic information for informing decision making.

GIS applications are:-

tools that allow users to create interactive queries (user-created searches), analyze spatial information, edit data in maps, and present the results of all these operations.

Geographic information science is the:-

geographic concepts, science underlying applications, and systems.

What goes beyond a GIS

?????

is a :-

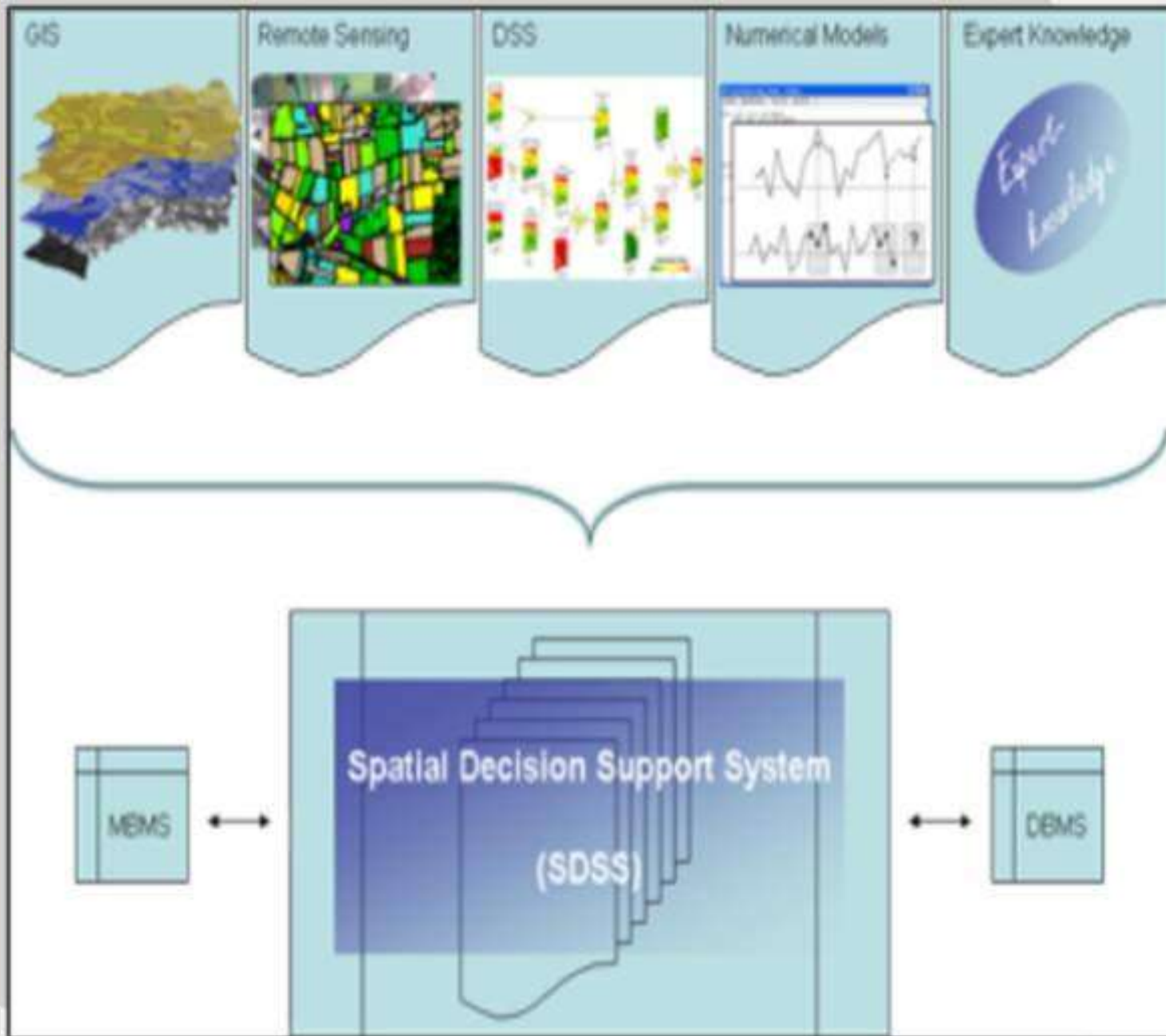
spatial data infrastructure,

a concept that has no such
restrictive boundaries.

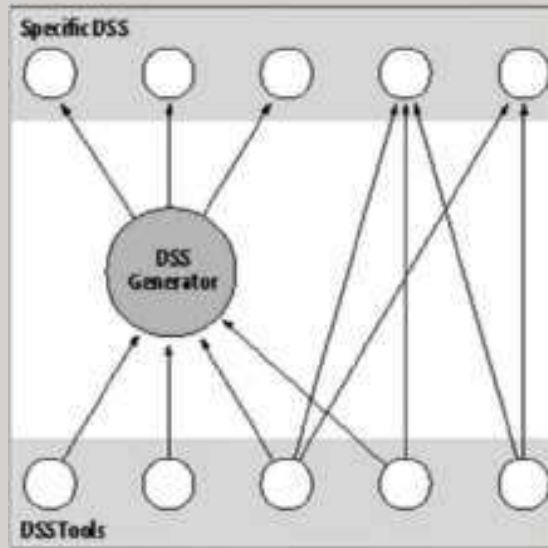
Spatial Decision Support System Definition:-

A spatial decision support system (SDSS) is an interacted computer-based system designed to assist in decision making while solving a semi-structured spatial problem. It is designed to assist the spatial planner with guidance in making land use decisions.

A system which models decisions could be used to help identify the most effective decision path.



Spatial Decision Support System Definition



An SDSS is sometimes referred to as a policy support system, and comprises a [decision support system](#) (DSS) and a [geographic information system](#) (GIS). use of: a [database](#) ^{مزلتسي} This entails [management system](#) (DMS), which holds and handles the geographical data; a library of potential models that can be used to forecast the possible outcomes of decisions; and an interface to aid the users interaction with the computer system and to assist in analysis of outcomes.

Spatial Decision Support System Process

An SDSS usually exists in the form of a **computer model** or **collection of interlinked computer models**, including **a land use model**. Although various techniques are available to simulate land use dynamics, two types are particularly suitable for SDSS.

These are cellular automata (CA) based models and Agent Based Models (ABM).

Spatial Decision Support System Process

An SDSS typically uses a variety of spatial and nonspatial information, like data on land use, transportation, [water management](#), [demographics](#), agriculture, climate, [epidemiology](#), [resource management](#) or employment. By using two or more known points in history the models can be calibrated and then projections into the future can be made to analyze different spatial policy options.

Using these techniques spatial planners can investigate the effects of different scenarios, and provide information to make informed decisions.

To allow the user to easily adapt the system to deal with possible intervention possibilities an interface allows for simple modification to be made.

The Environmental Factors

Environmental protection and conservation are of utmost importance to many planning systems across the world.

Attempts are made to minimize the overall effect of development on the local and global environment. This is commonly done through the assessment of Sustainable urban infrastructure.

Environmental planners are focusing on smaller systems of resource extraction, energy production and waste disposal. □

There is even a practice known as Arcology, which seeks to unify the fields of ecology and architecture, using principles of landscape architecture to achieve a harmonious environment for all living things. □

Planner is likely to use a number of quantitative tools to forecast impacts of development on the environmental, راشتنا including roadway air dispersion models to predict air quality impacts of urban highways and roadway noise models to predict noise pollution effects of urban highways.