

GIS definitions and application in the veterinary contexts

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What is GIS?

G.I.S. is the acronym of

Geographic

Information

Software →

System →

Geographic information science is the academic theory behind the development, use, and application of [geographic information systems](#).

Science

Geographic : it is related to the earth

Information : is the concept of transmitted quantities as bearers of messages

Systems : is a set of interacting or interdependent [objects](#)

Exploring data by a GIS let you to transform data in information and information in knowledge

What is GIS?

- “GIS is much more than a container of maps in digital form”.
- “A GIS is a computerized tool for solving geographic problems”
- “GIS is a spatial decision support system”
- “GIS is a mechanized inventory of geographically distributed features and facilities”
- “GIS is a method for revealing patterns and processes in geographic information”
- “GIS is a tool to automate time-consuming tasks that are too tedious or expensive or inaccurate if performed by hand”
- “GIS is a collection of computer hardware, software, and geographic data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.”

What is GIS?

GIS: A system for capturing, storing, checking, manipulating, analysing and displaying data which are spatially referenced to the earth (Chorely 1987)

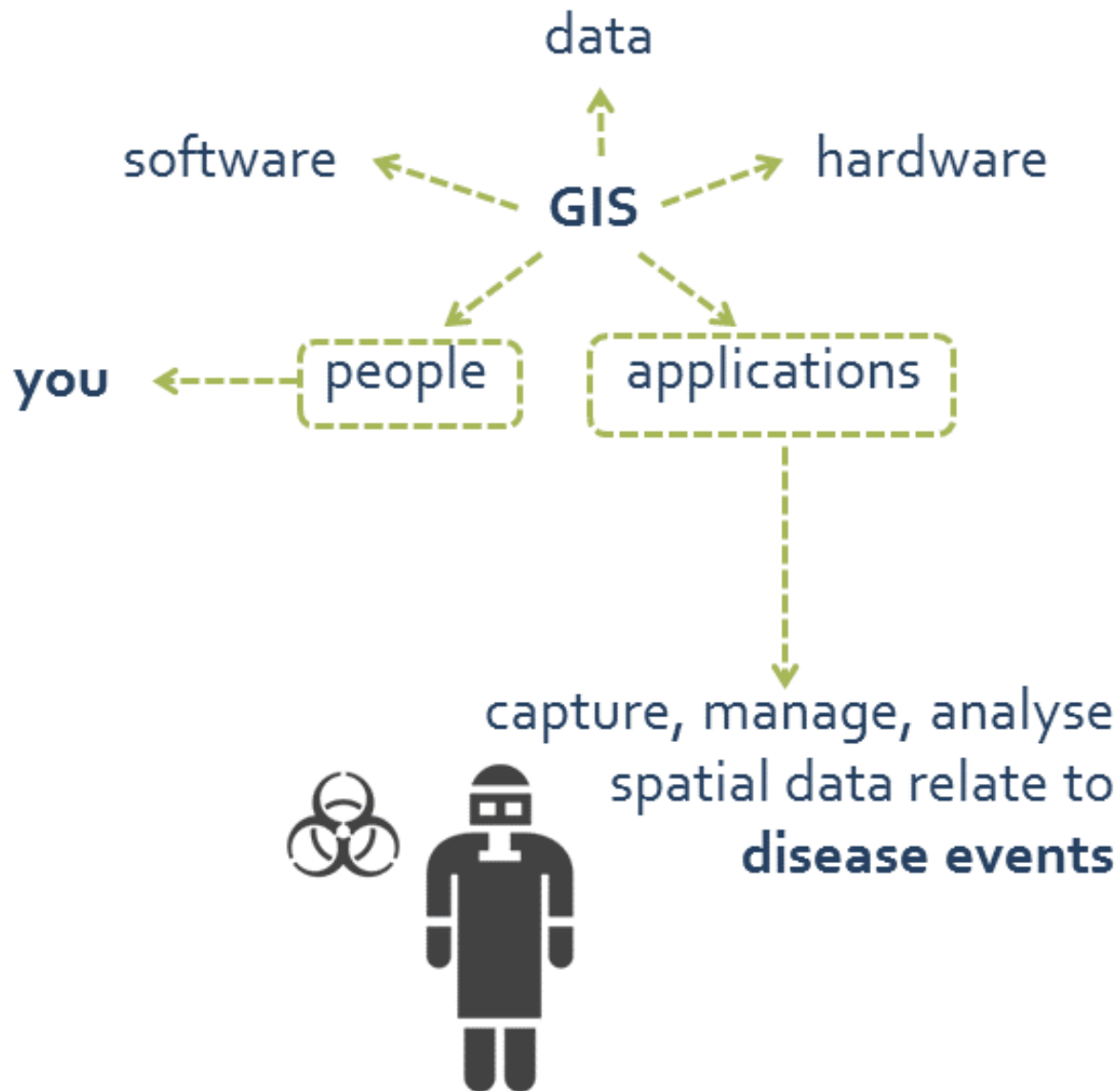
GIS basic elements:

- Information system
- Georeferenced information

Basic element – Information system

An Information System is any system for the collection, organization, storage and communication of information.

Basic element – Information system



Basic element - georeferenced

To **georeference** something means to define its existence in physical space .

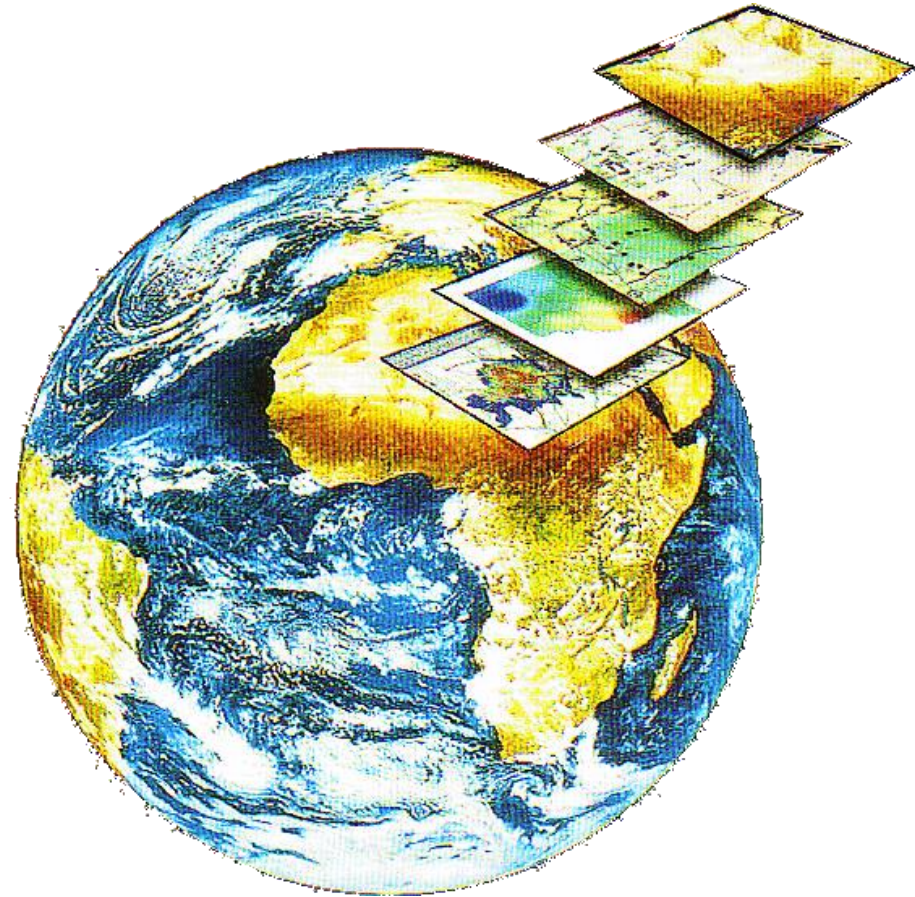
..the internal coordinate system of a map or aerial photo image can be related to a ground system of geographic coordinates

Geography is the branch of science concerned with identifying and describing the Earth,

Cartography is the mapping of spaces to allow better navigation, for visualization purposes and to act as a locational device

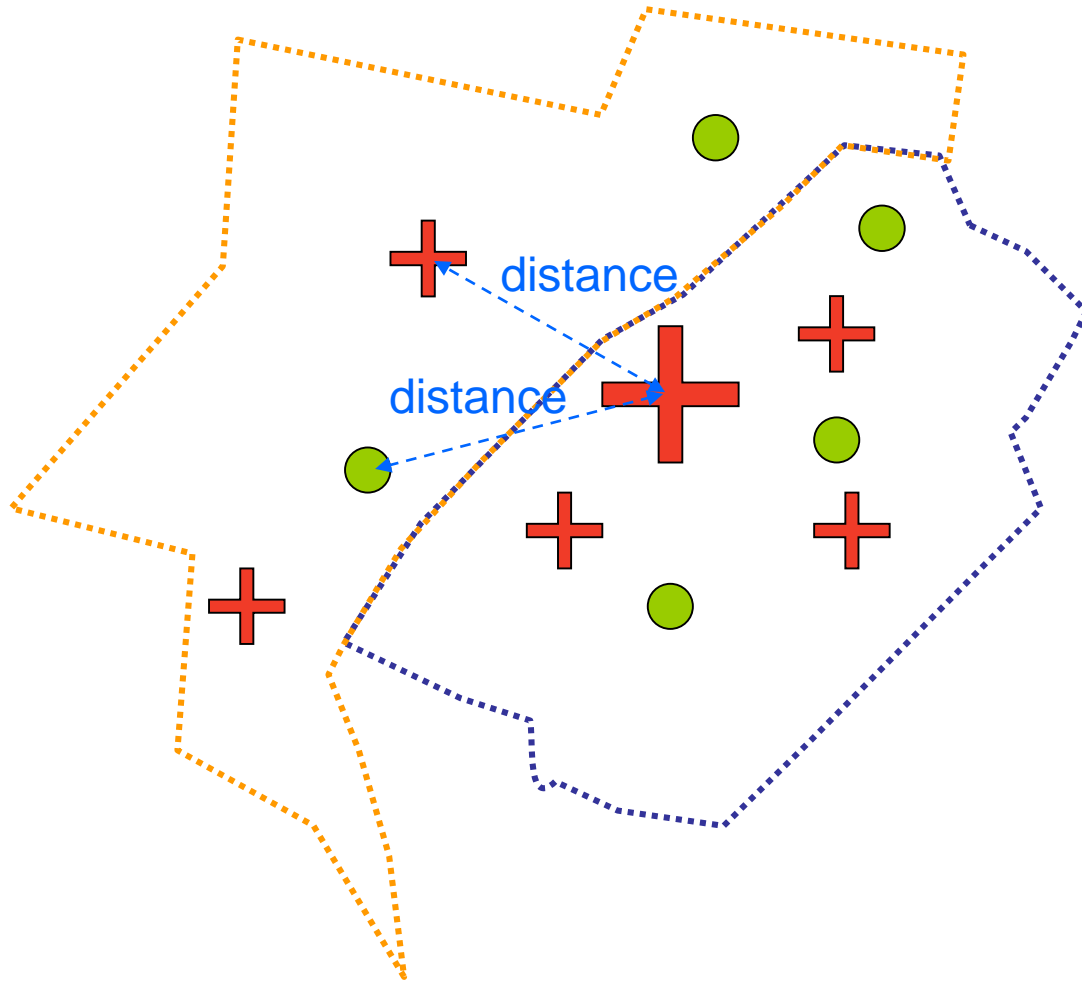
GIS technology

The power of a GIS comes from the ability to relate different information in a spatial context and to reach a conclusion about this relationship



Bringing space into our thinking gives us a richness of relations and a stimulus to ideas about relations (Heywood 1988)

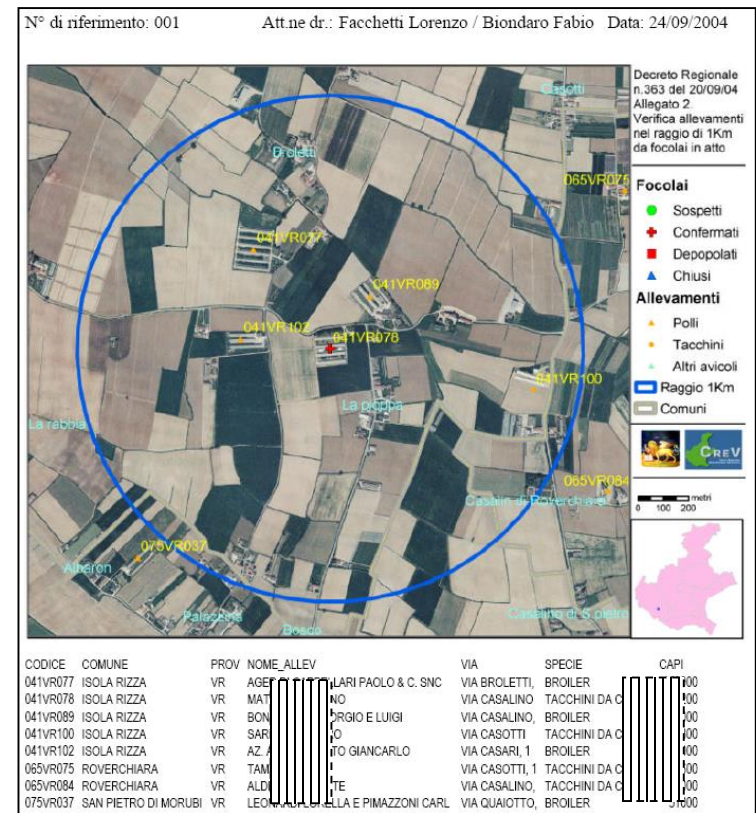
..relations..



GIS application

Management of epidemic events

- Detect infected herd;
- Define infected area
- etc.

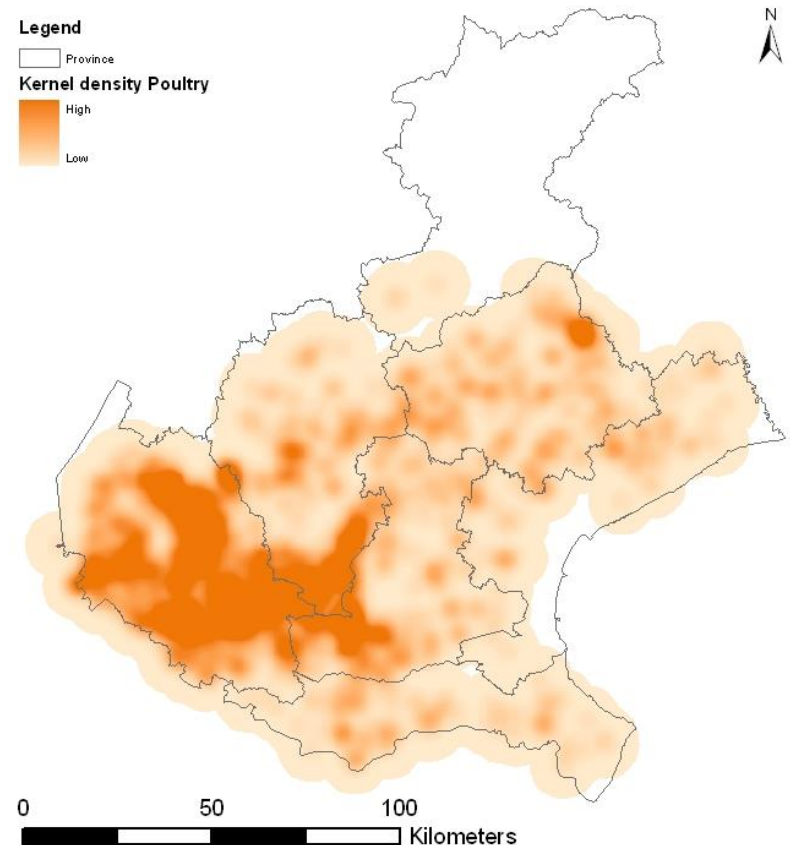


GIS application

Management of epidemic events

Management of the territory

- defining densely populated areas;
- relationship among herds;
- etc.

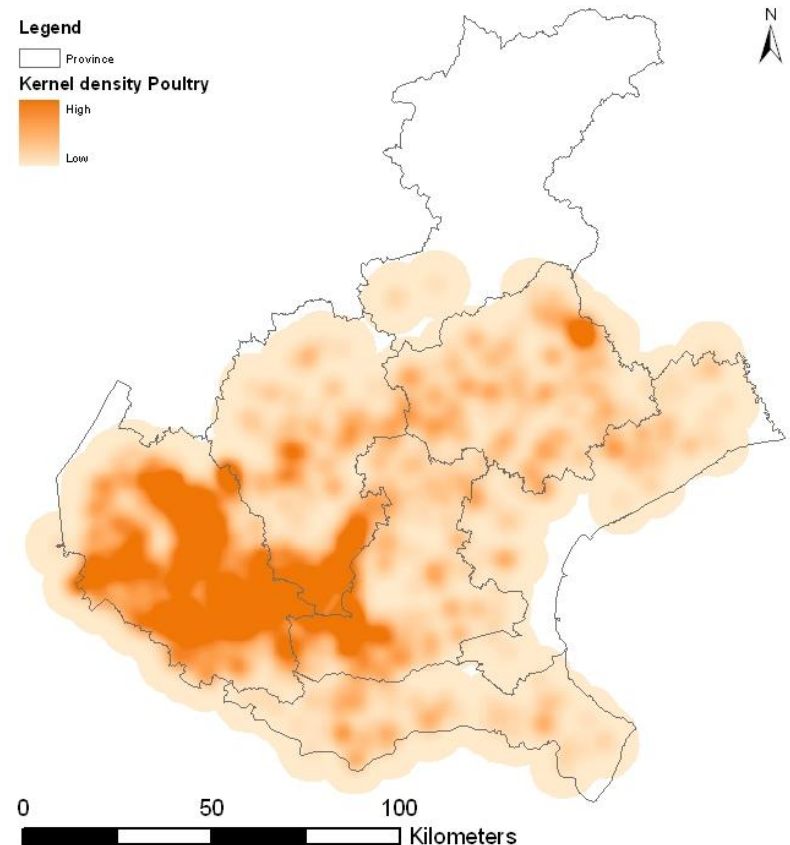


GIS application

Management of epidemic events

Management of the territory

- defining densely populated areas;
- relationship among herds;
- etc.



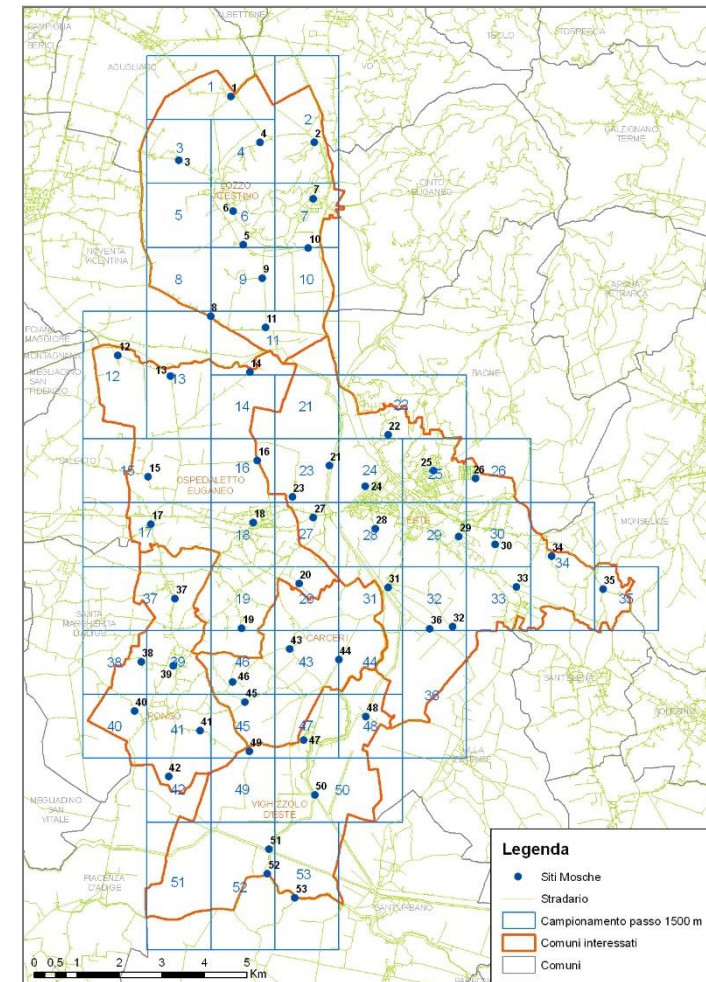
GIS application

Management of epidemic events

Management of the territory

Epidemiological surveillance

- Define sampling area;
- Risk mapping;
- etc.



GIS application

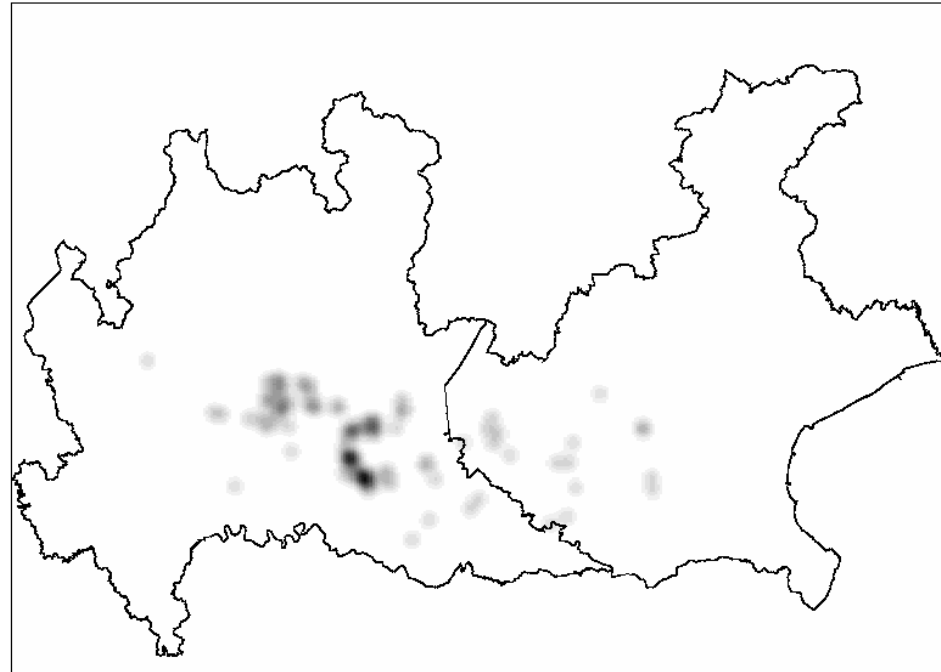
Management of epidemic events

Management of the territory

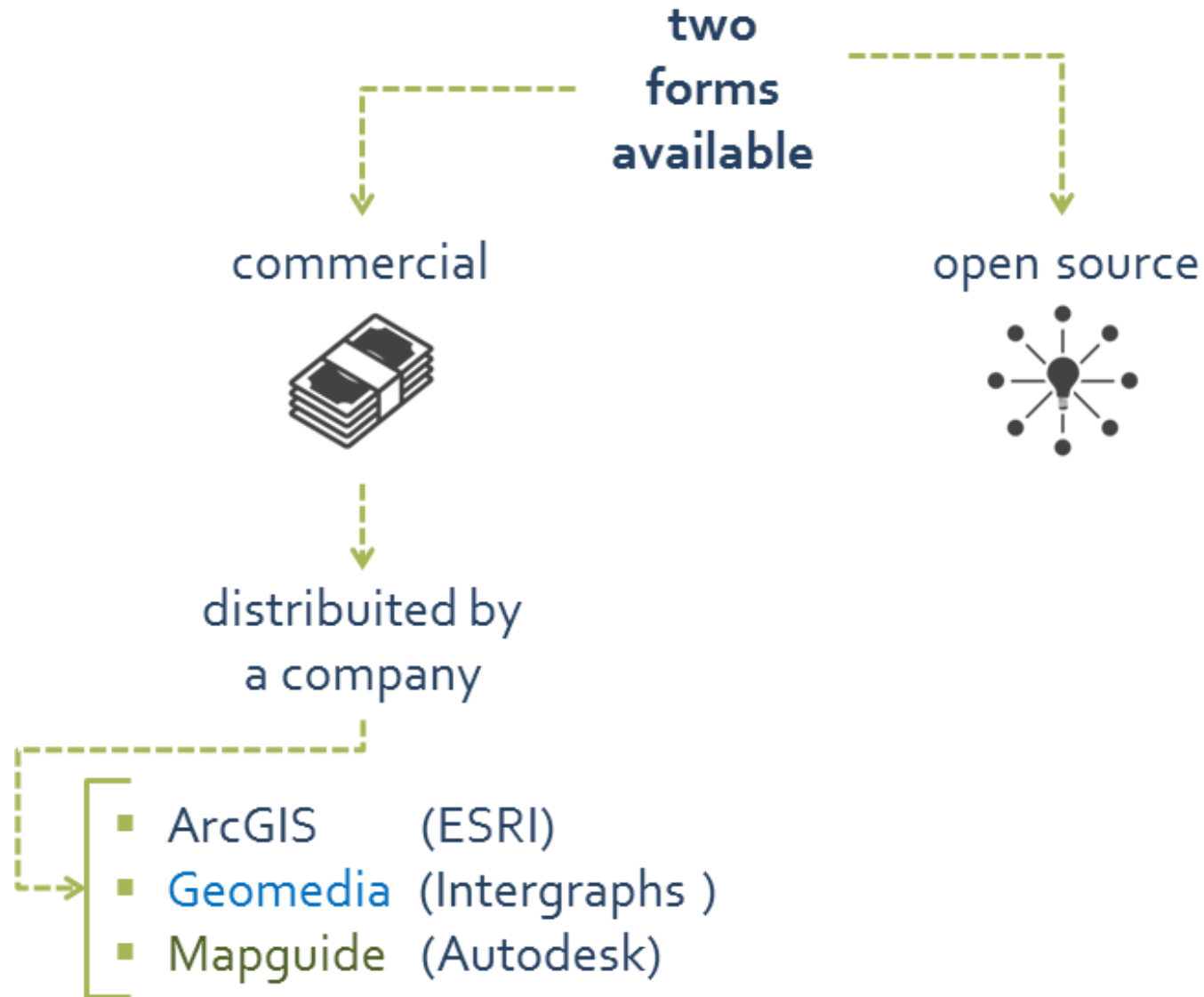
Epidemiological surveillance

Research

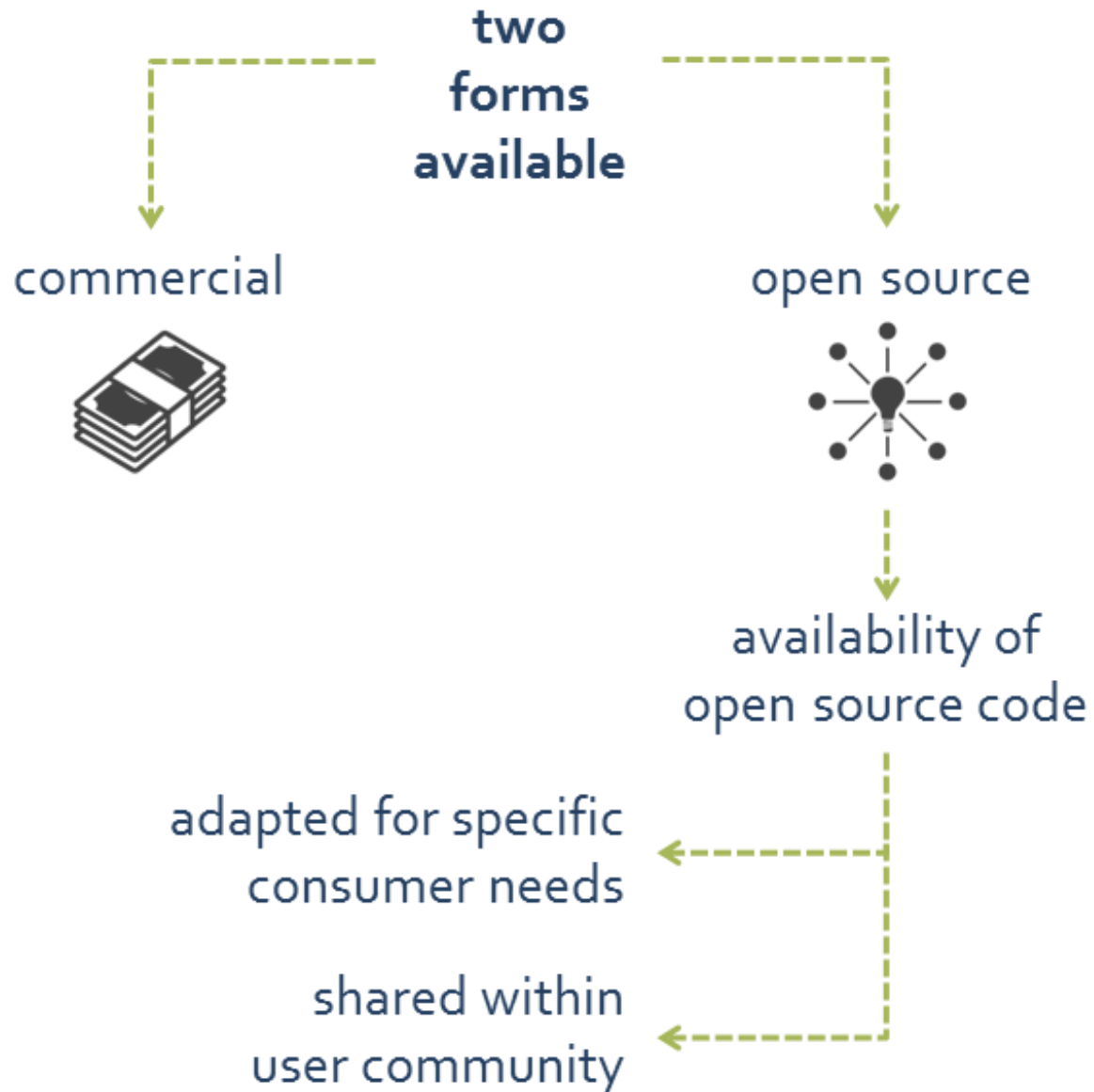
- Spatial analysis;
- Geostatistical model
- etc.



GIS software



GIS software



GIS terms

geographic information



any information concerning phenomena that can be associated with a location relative to the earth



..we can see a farm..



..but cannot see this boundary..

GIS terms

location



information that refers to the position
in space about where the phenomena occurs



coordinate



latitude: $45^{\circ}20'56.2''\text{N}$

longitude: $11^{\circ}57'22.7''\text{E}$



postal address



IZSve

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GIS terms

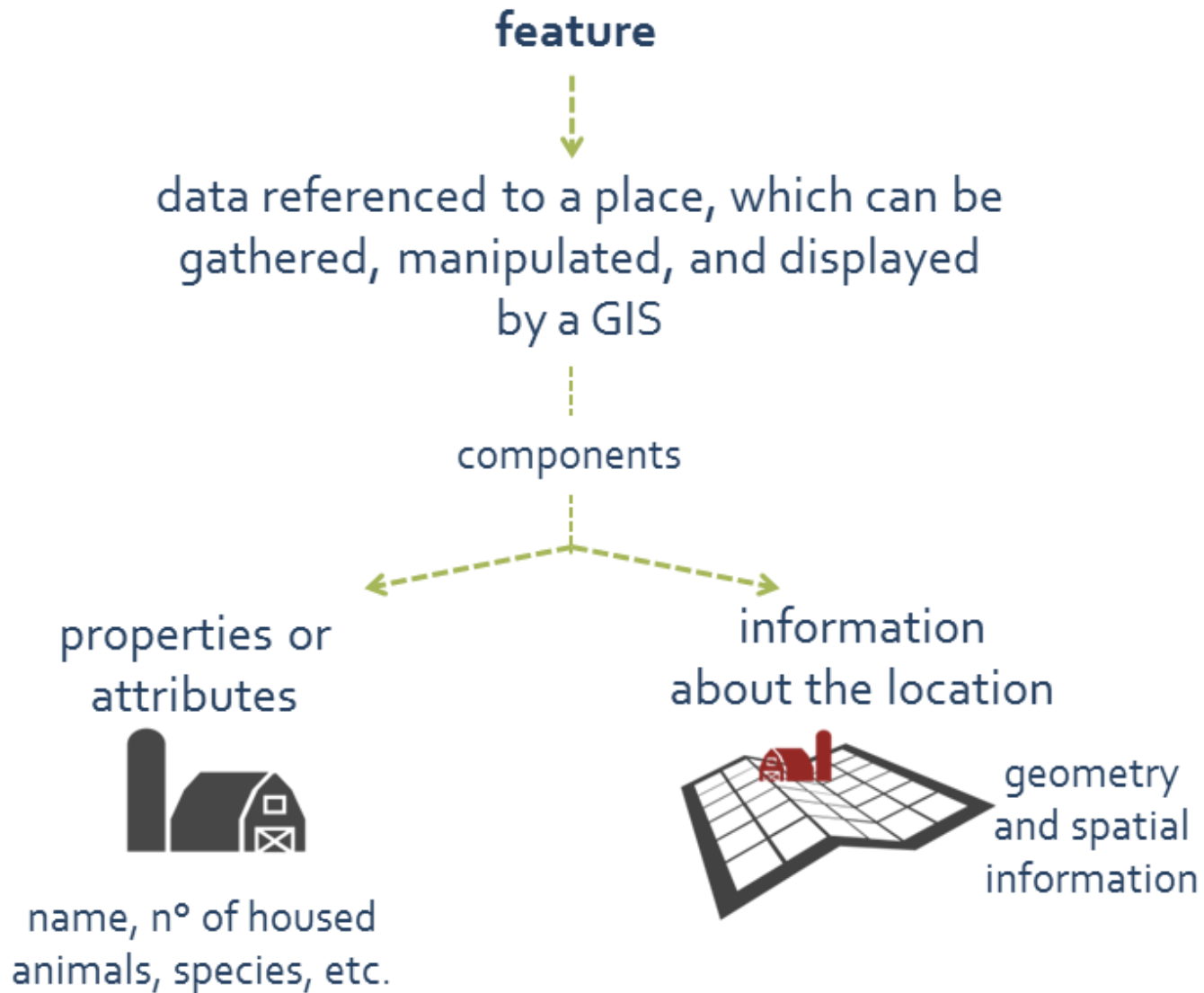
feature



data referenced to a place, which can be gathered, manipulated, and displayed by a GIS



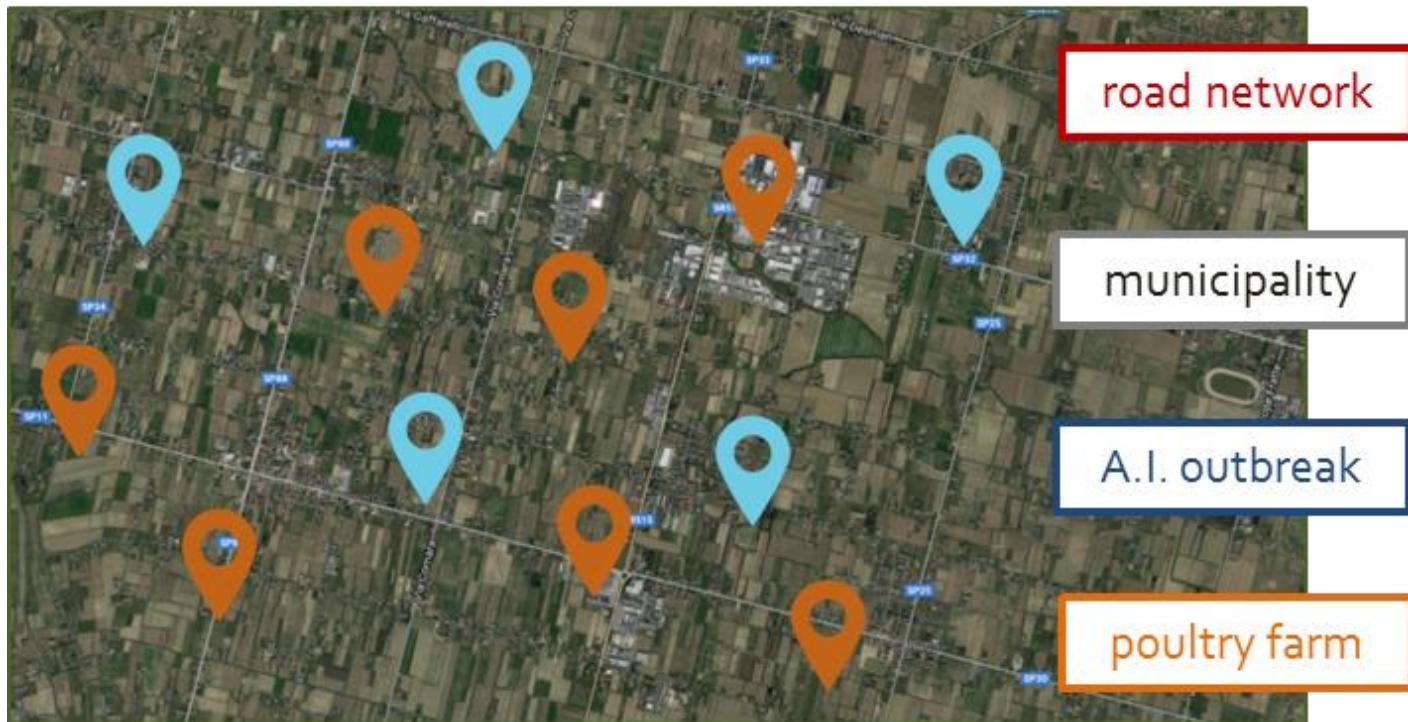
GIS terms



GIS terms – The layer concept



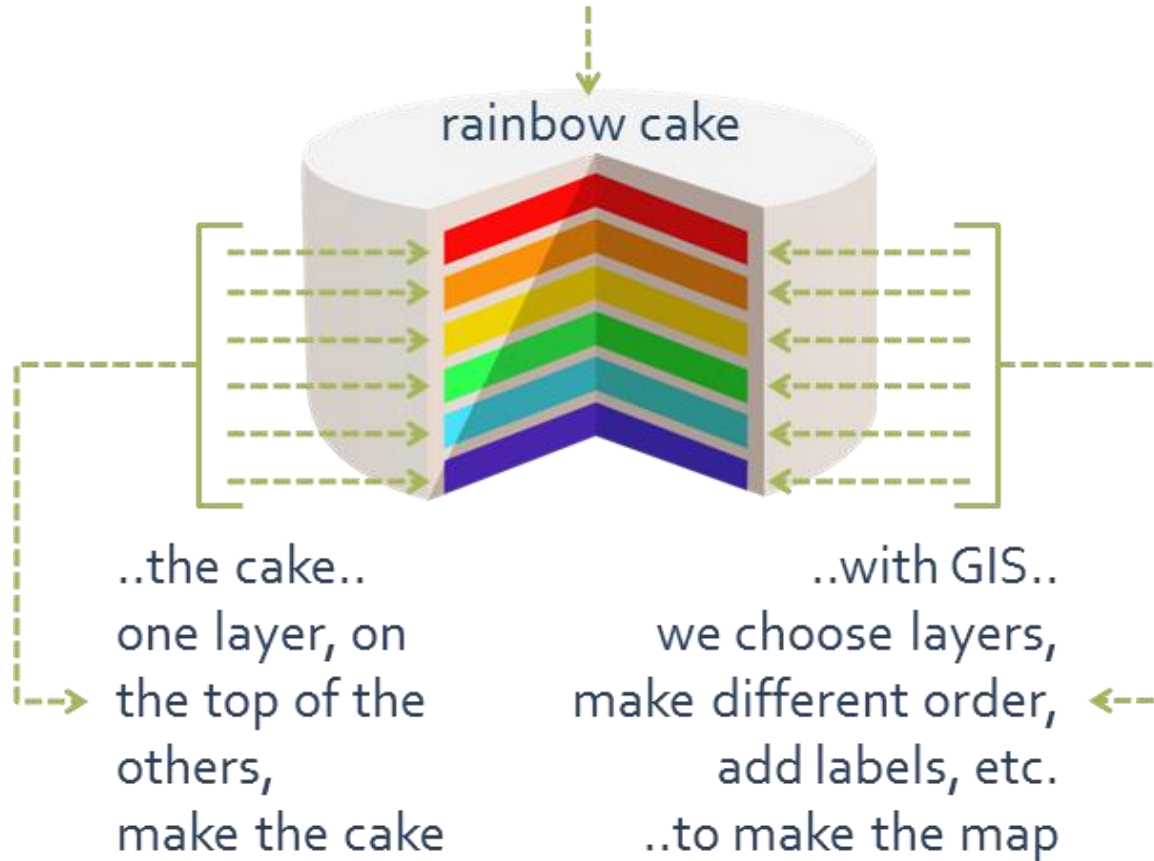
possible representation
on a map of a feature



GIS terms – The layer concept



possible representation
on a map of a feature



GIS terms – The layer concept

feature



geospatial data stored
in the computer



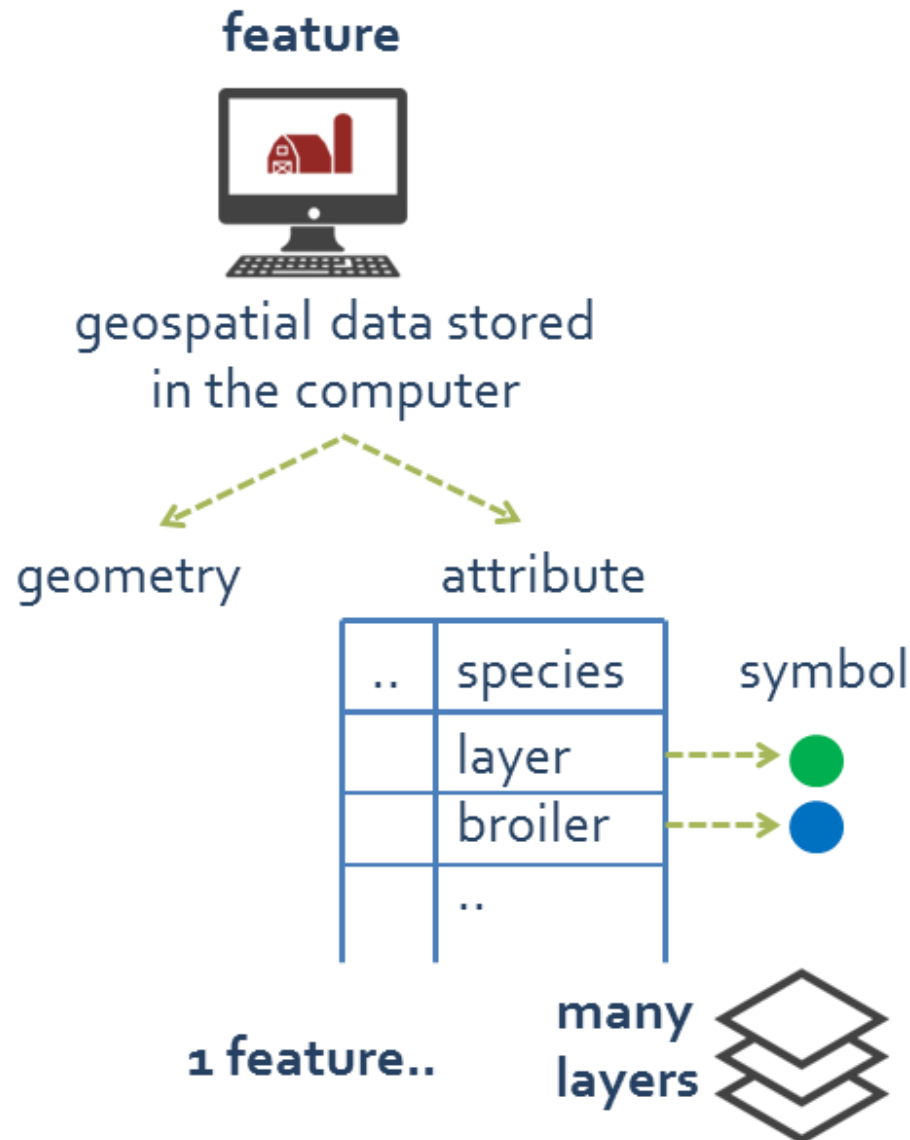
GIS process:
portrayal

←--→ symbol



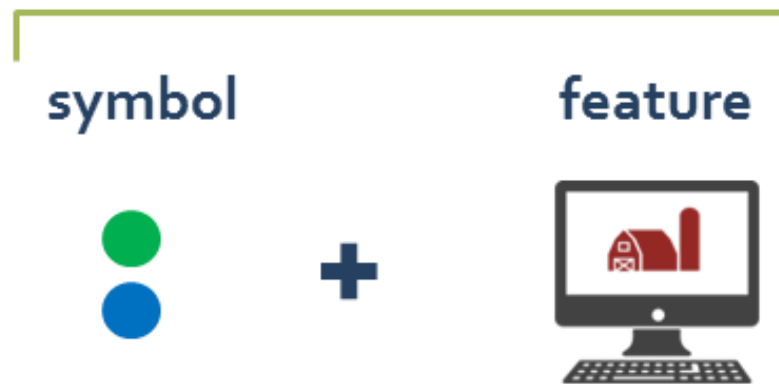
representation
of a feature on a map

GIS terms – The layer concept



GIS terms – The layer concept

layer representation of a feature on a map



Features in animal disease response

