RIGA: A Rich Internet Geospatial Analytics Application for Area-based Data

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Citation

RIGA: A Rich Internet Geospatial Analytics Application for Area-based Data

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Content

- Motivations

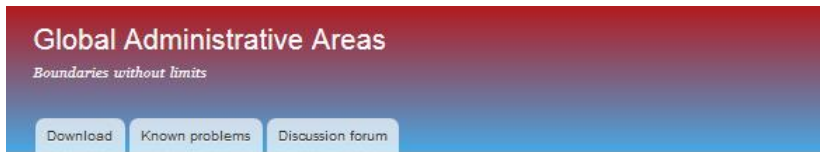- RIGA design architecture

- RIGA in action

- Q & A

What are Area-based Geospatial Data

- A representation of geographical features in the form of polygon or lattice.

- Formal
  - political boundary, administrative boundary, election boundary.

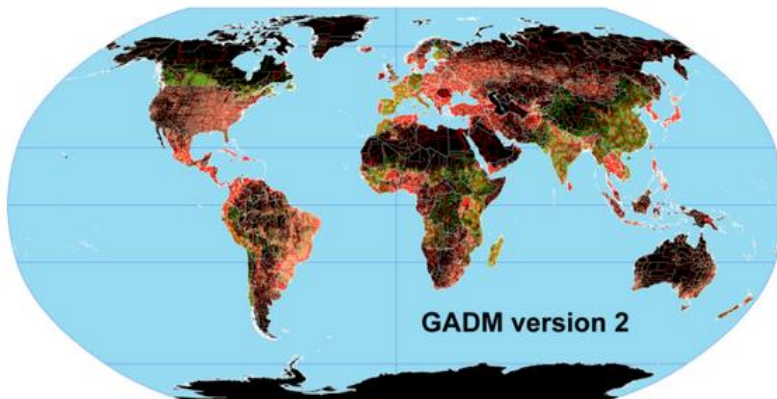- Informal
  - analytical grid, hexagon, etc

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Motivation 1: data.gov initiative

- Availability and easy accessible to highly disaggregated public and government data.

Motivation 2: The Myth of Geography matters!

- About 80% of all data maintained by organizations around the world has a location component (Source: BusinessWeek Research Services, 2006)

issues related to the business processes...

....happen in places

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GIS map

- A choropleth map showing the distribution of a geographical theme.
  - For example, where are the provinces with high crude death rate.

Variable Distribution

Legend
7.90
6.93
5.95
4.97
4.00
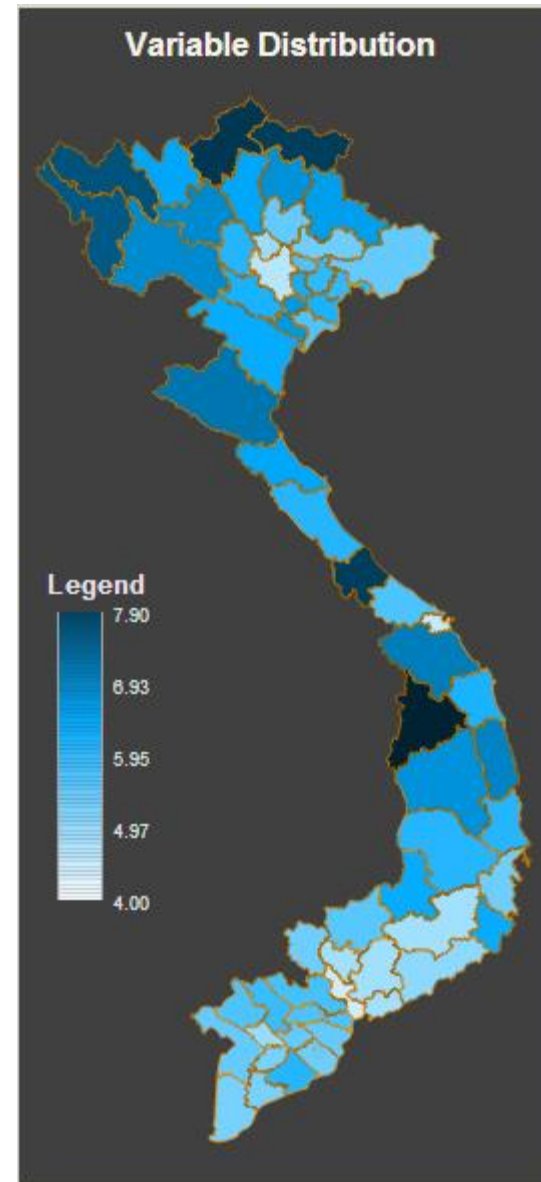
Geospatial Analytics map

- A hotspot area map identify spatial association of the geographical theme
    - For example, where are the clusters of provinces with high crude death rates.
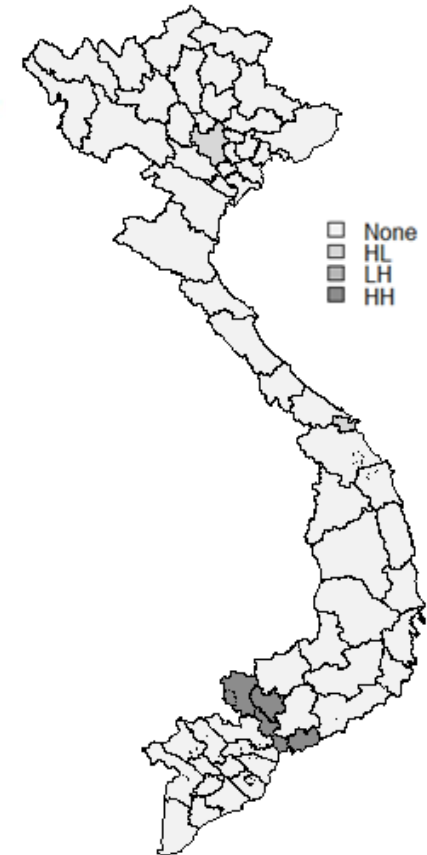
# Geospatial Analytics toolkits – API library
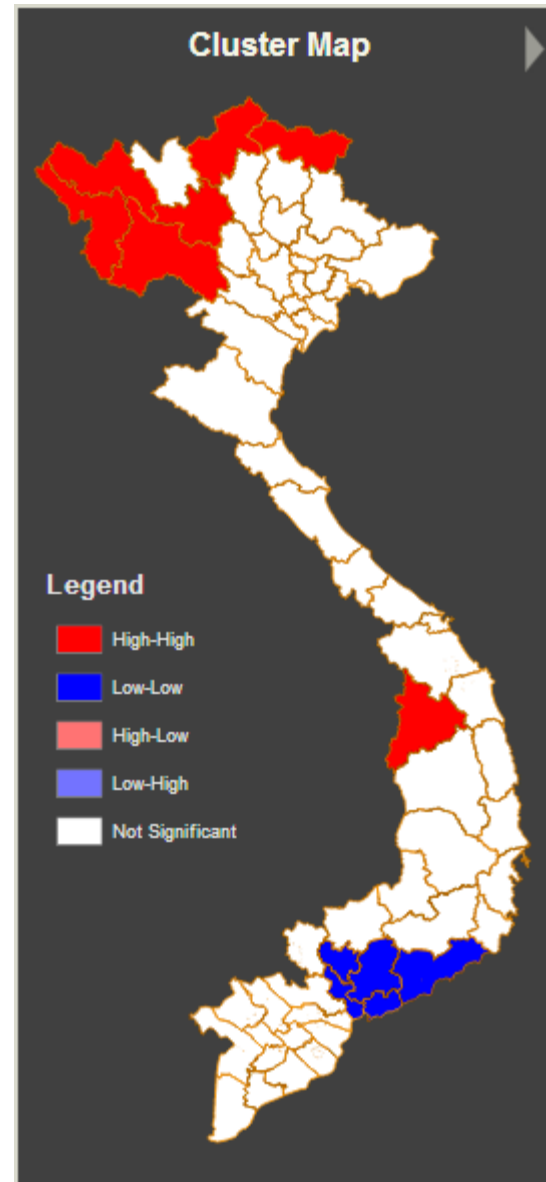
- spdep, spgwr

Local Moran

```
> fips <- order(vnminc$FIPSNO)
> nclocI <- localmoran(vnminc$IPC04_AVG, listw=vnm_cnq_w)
> printCoefmat(data.frame(nclocI[fips,],
row.names=vnminc$ADM2CODE[fips]), check.names=FALSE)
```

|	Ii	E.Ii	Var.Ii	Z.Ii	Pr.z...0.
101	-0.61846060	-0.01612903	0.09705275	-1.93344442	0.9734
103	0.32286480	-0.01612903	0.27842097	0.64245220	0.2603
104	-0.05436380	-0.01612903	0.20587368	-0.08426710	0.5336
106	0.22572253	-0.01612903	0.20587368	0.53302610	0.2970
107	0.04587465	-0.01612903	0.13332640	0.16980849	0.4326
109	-0.00298277	-0.01612903	0.16234531	0.03262739	0.4870
111	-0.05206503	-0.01612903	0.13332640	-0.09841734	0.5392
113	0.06614244	-0.01612903	0.27842097	0.15591874	0.4380
115	-0.01154417	-0.01612903	0.16234531	0.01137906	0.4955
117	0.22770252	-0.01612903	0.20587368	0.53738987	0.2955

☐ None
☐ HL
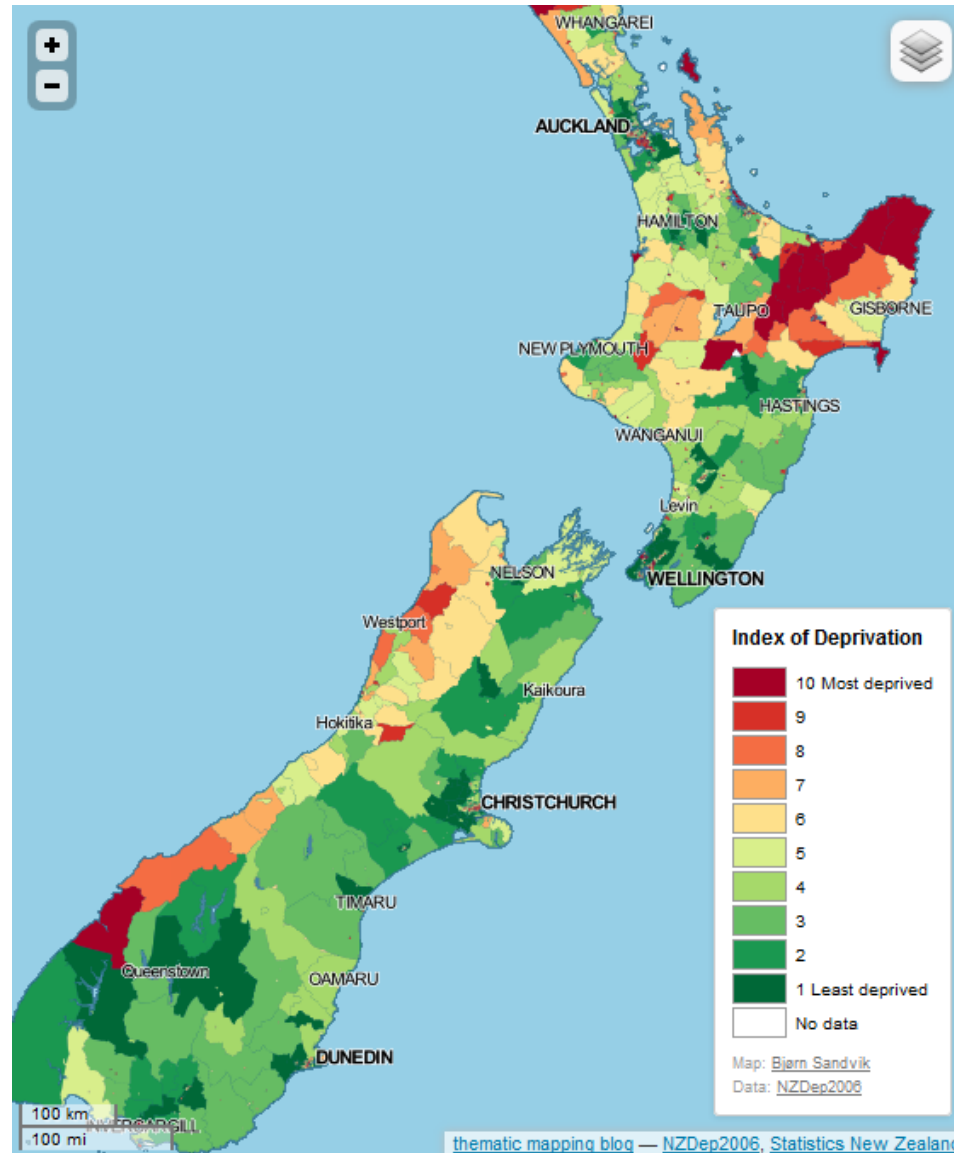☐ LH
☐ HH

Geospatial Analytics Toolkit - desktop
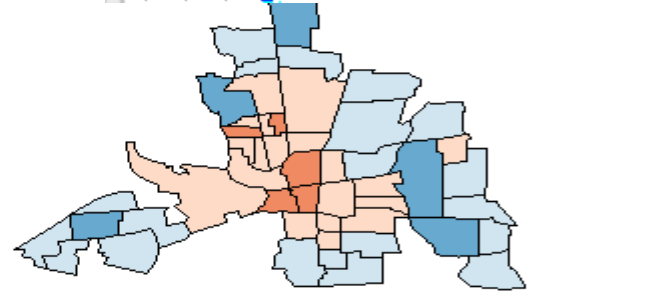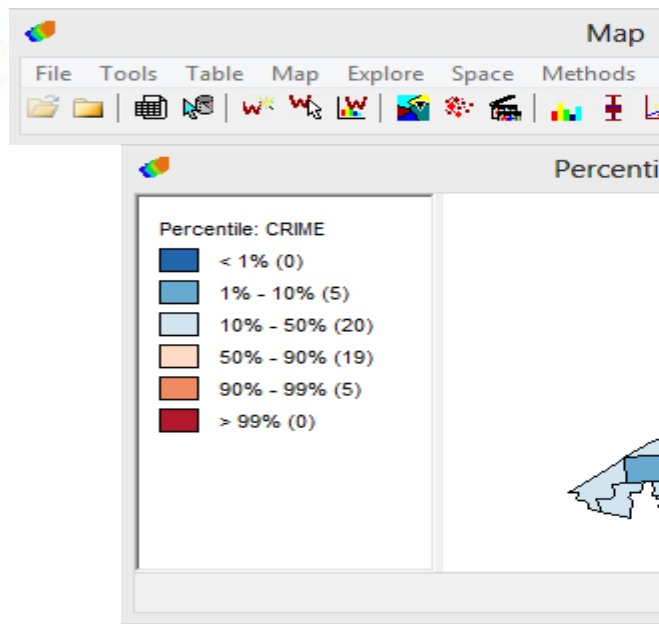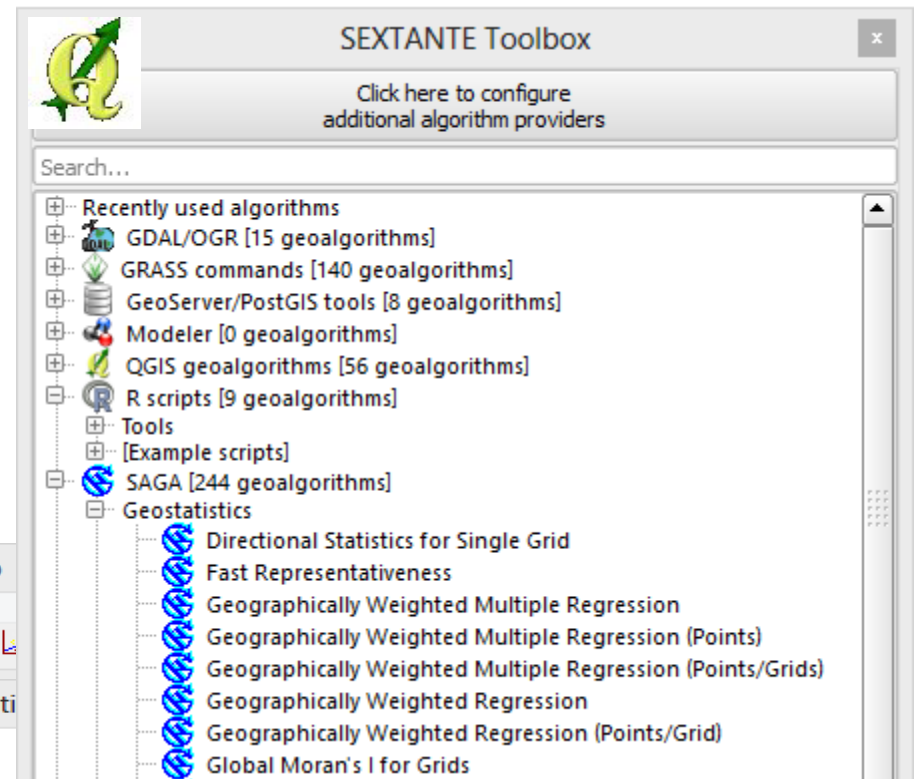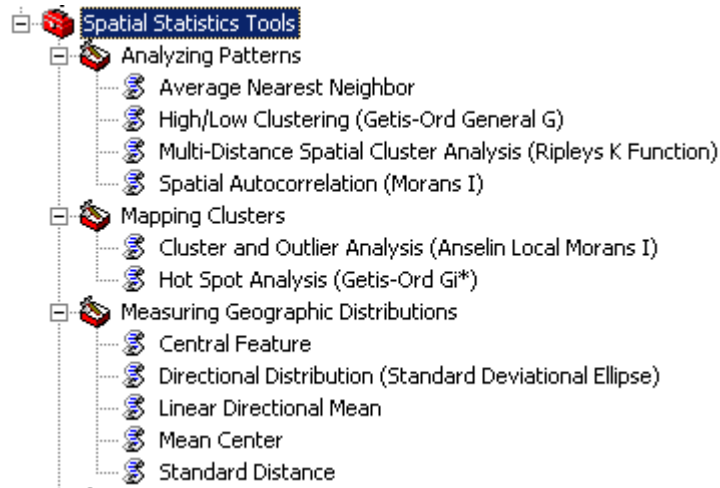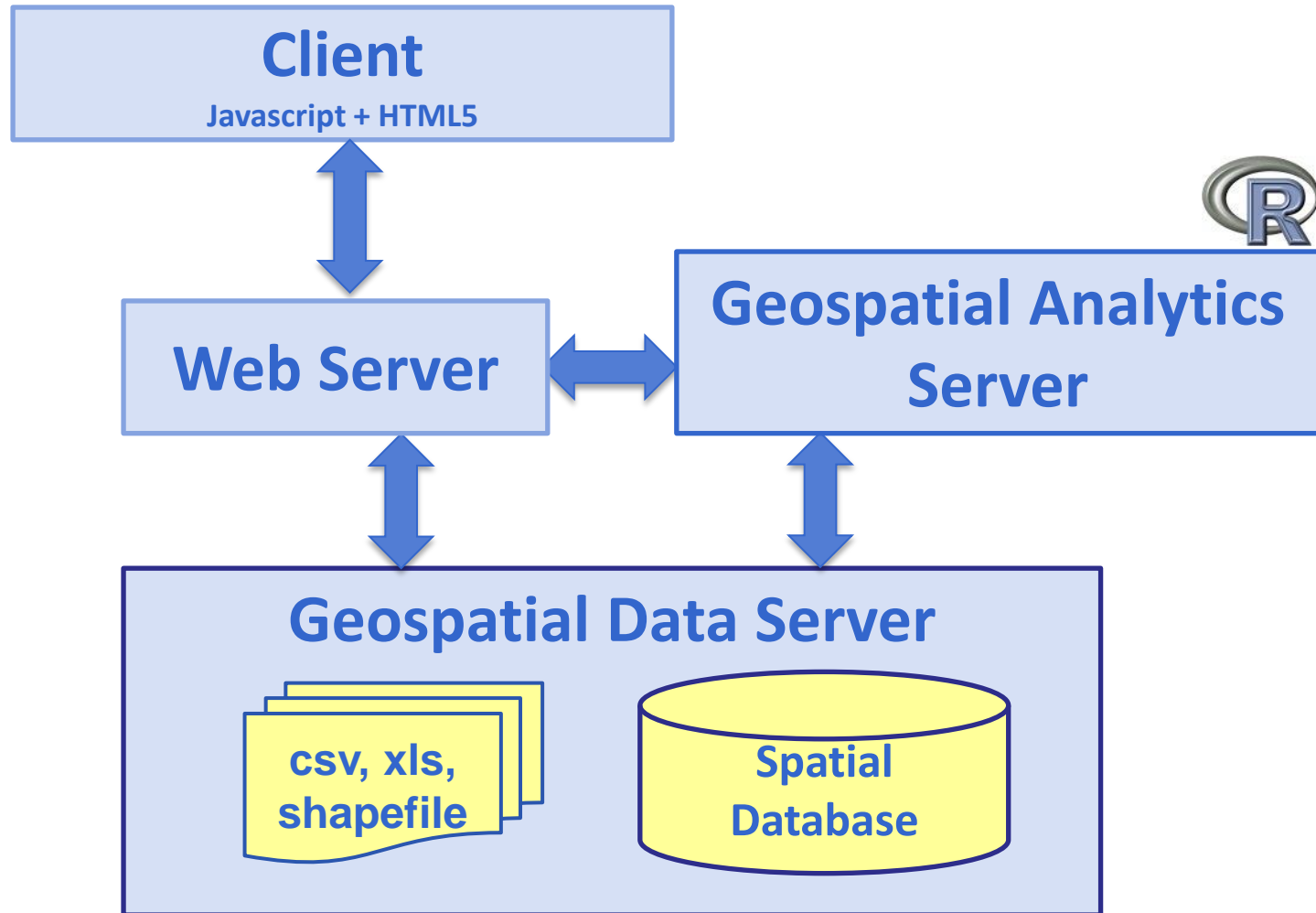
Motivation 3: GeoWeb 2.0
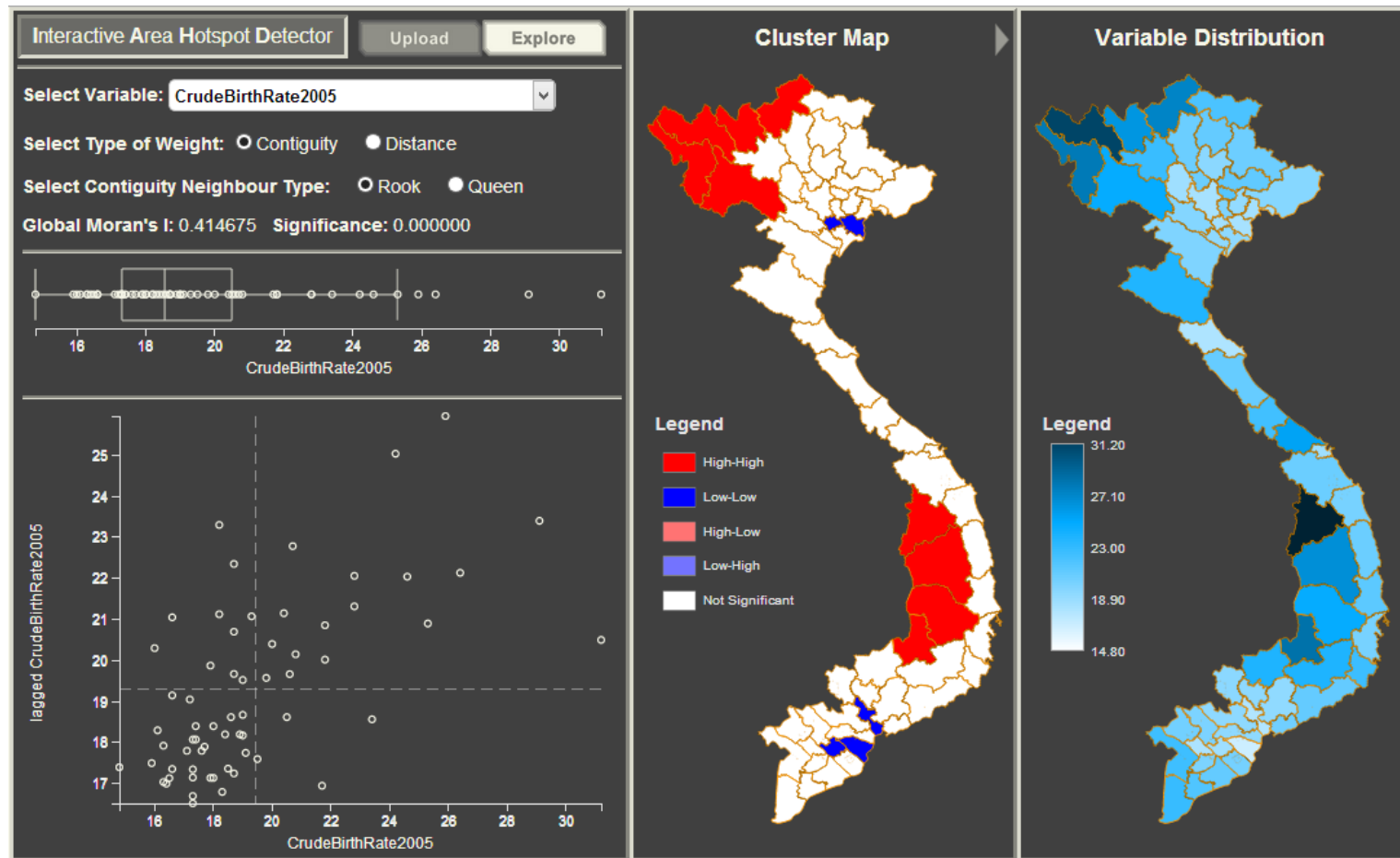
- From www GIS to GeoWeb 2.0
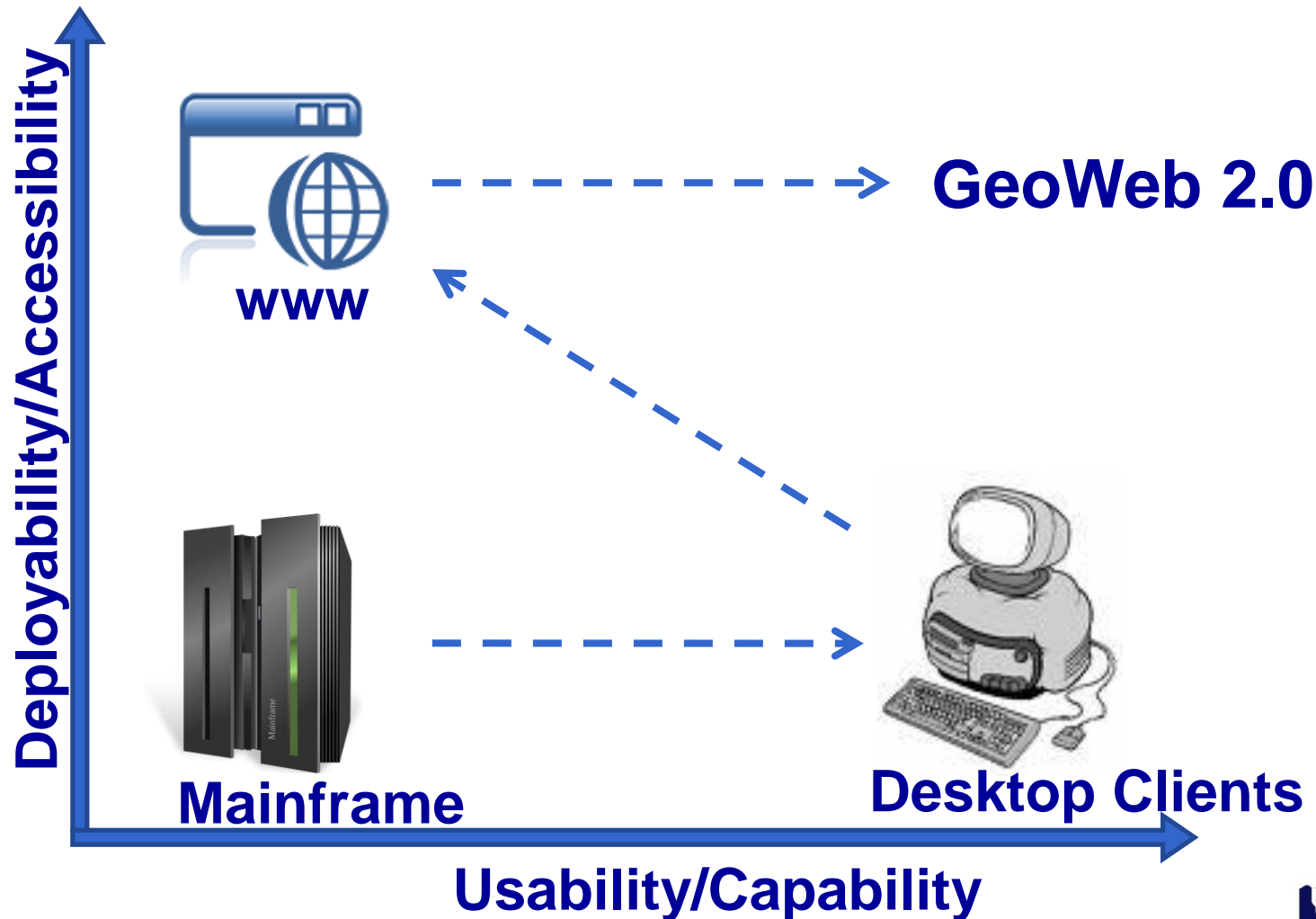
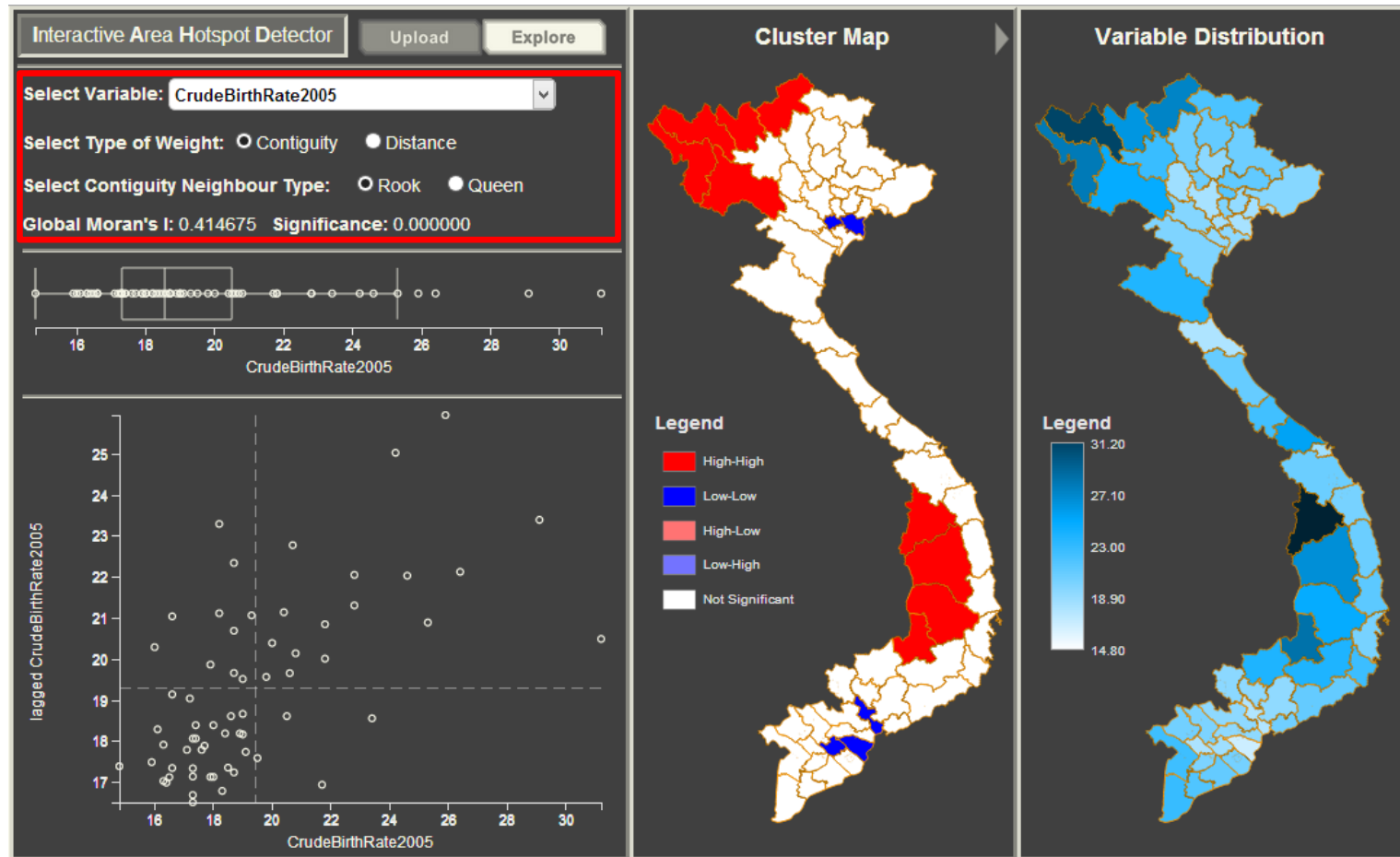# Modern web map

RIGA Architecture

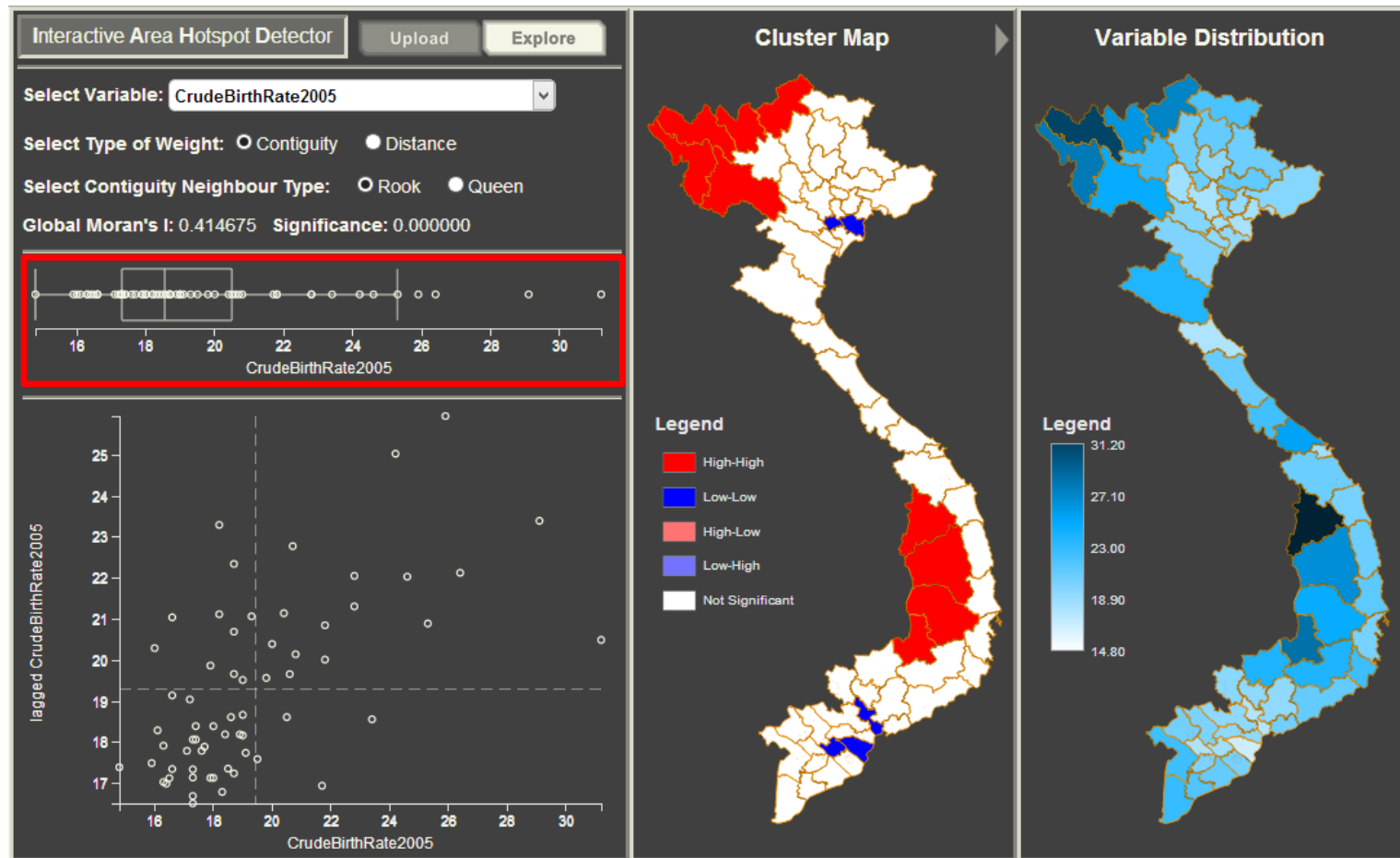# RIGA- Exploratory Spatial Data Analysis (ESDA)

RIGA- Exploratory Spatial Data Analysis (ESDA)

- Interactive GUIs

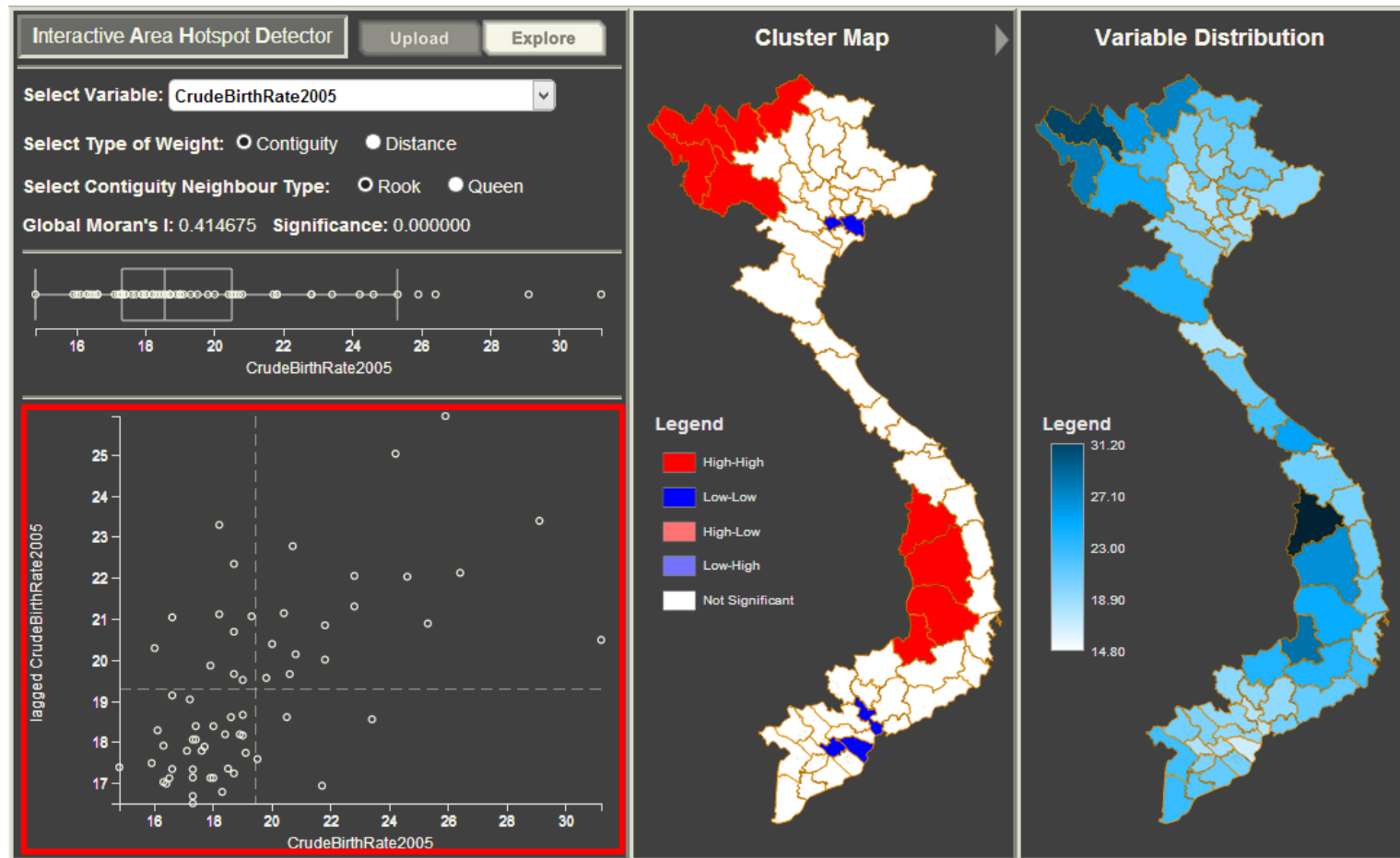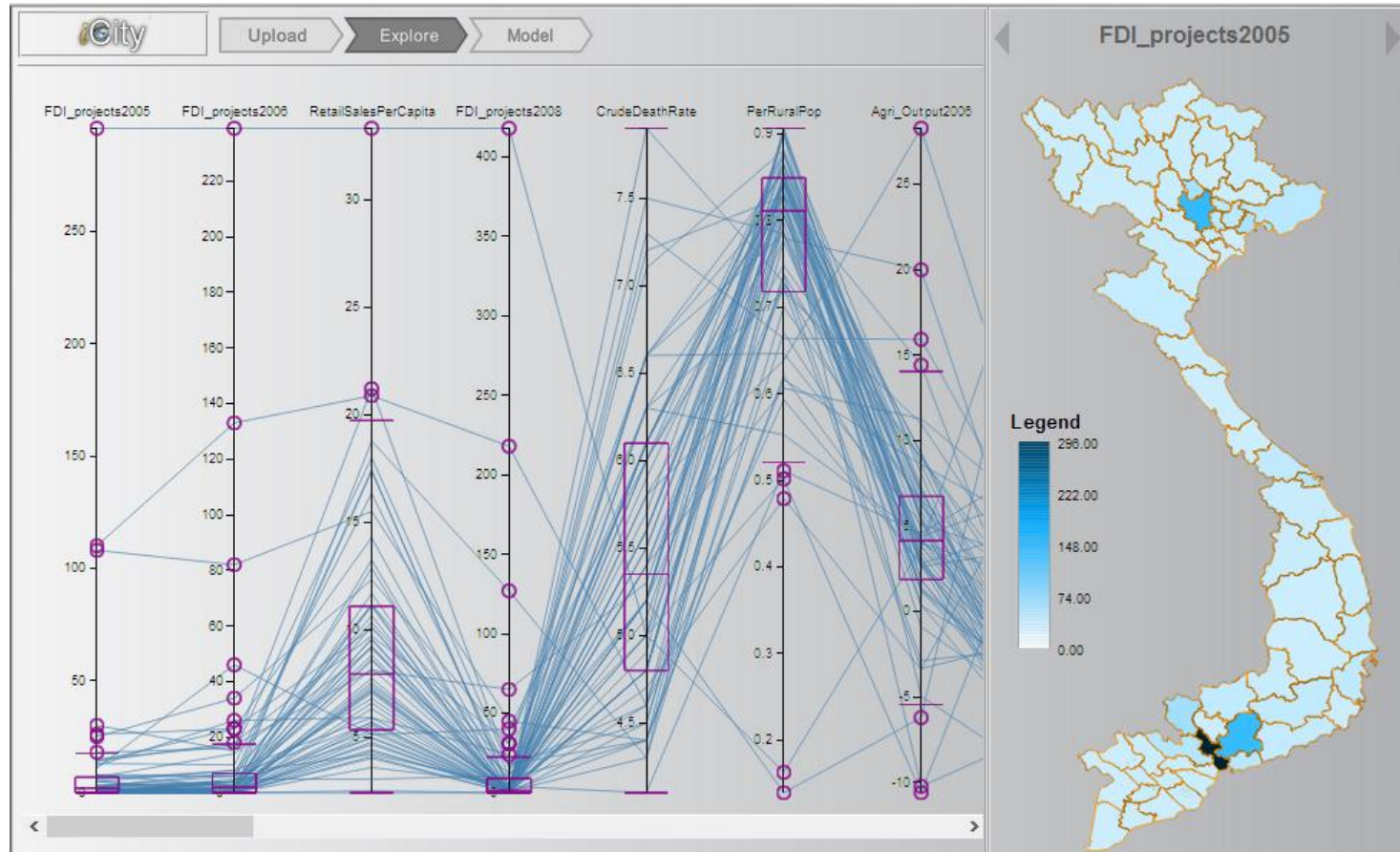# RIGA- Exploratory Spatial Data Analysis (ESDA)

- Interactive boxplot

RIGA- Exploratory Spatial Data Analysis (ESDA)

- Interactive Moran scatter plot

RIGA – Exploratory Regression models

- Parallel coordinate plot and choropleth map for visualising and analysing multivariate data.

RIGA – Exploratory Regression models

- Multiple regression models (OLS and GWR)

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