Data visualization for statistical data processing

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Visualize, eXplore, Know

Statistical data processing
for demographic and social analysis

Production methods and processes

for demographic and social analysis

can be characterized by a strong diversity

but …

Some problematic (???) elements
are often the same
and may be shared

- *Multichanneling acquisition of statistical information*
- *Monitoring*
- *Quantitative analysis*
- *Qualitative analysis*
- *Contacts with respondents*

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Statistical data processing
for demographic and social analysis

A system

• Integrated, standardized

• Given to the individuals to manage surveys

• Interactive in the communication with users

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Statistical data processing
for demographic and social analysis
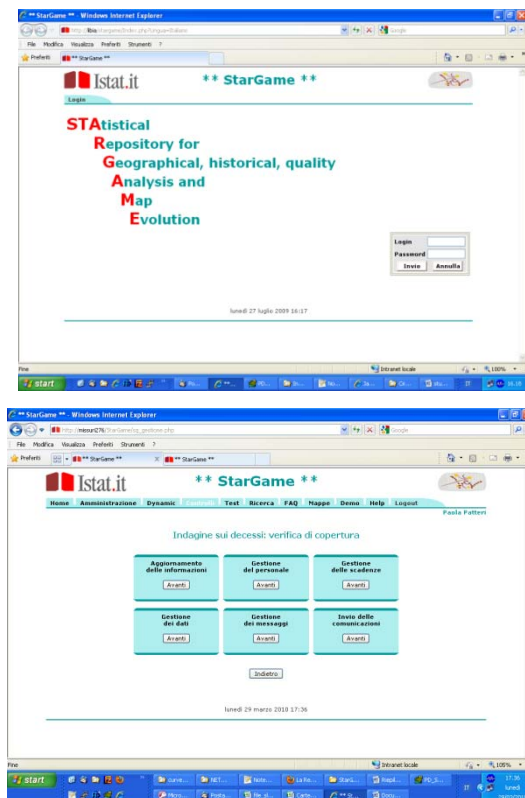
A system that

Takes in account multichannelity:
• To acquire data (registered paper forms, files, web)
• To manage contacts with users and respondents (private and public institutions, family, people)

Enables to follow the events to monitorize and analyse the development state of work

Builds only one repository,
That can be upgraded about information concerning institutional respondents and communications

Enables quantitative and qualitative data analysis
using dynamic cartography and dynamic graphs

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StarGame

STAtistical
Repository for
Geographical, historical, quality
Analisys and
Map
Evolution

A developing system
To support the necessity of production processes

To each one its own system

StarGame: the prototype of a system

Which products are developing ?

Monitoring and quantitative data analysis

- Graduates Educational and Professional Path Survey

- Causes of Death Survey

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StarGame: the prototype of a system

Which products are developing ?

Qualitative data analysis

•Age-specific Fertility Rates by italian geographical areas

•Gender and Age population structure

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Graduates Educational and Professional Path Survey
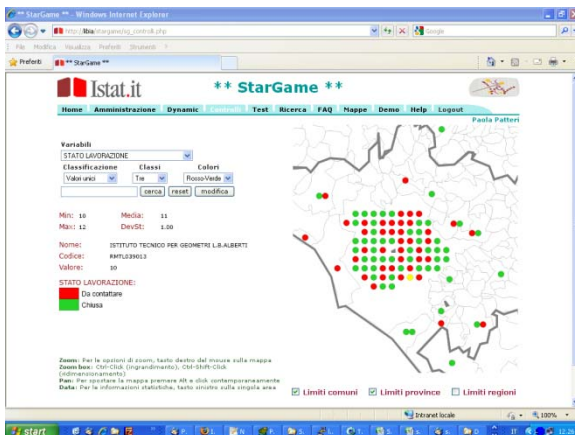
Dynamic cartography (points) to visualize
Quantitative data analysis

Monitoring and sending communication

Comparisons among different information sources:

•Number of graduates from secondary schools
•Number of graduates from administrative data (Ministry of Education)

To identify school
•That provided data on graduated
•That has to provide data on graduated

.

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Graduates Educational and Professional paths Survey

One form for each school:
- The number of graduates from administrative sources (file)
- The number of graduates from schools (web)

The number of graduates from schools (file from paper models)

- To visualize data
- To acquire and modify information about reference people
- To print the form
- To send e-mail to reference people
- To trace the action
- To monitorize the different phases of the work using cartography

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StarGame: the prototype of a system

Graduates Educational and Professional paths Survey

Identified the school to be contacted is possible to:
•Generate a personal document that contains the data of the persons to be contacted
•Create a file (*.zip*)
•Send the enclosure attached to e-mail address memorized by the system

Quantitative data analysis, dynamic cartography, interactive communication to:

•Facilitate the process of checking data
•Facilitate the monitoring of multichanneling acquisition
•Facilitate the possible communication

Visualize, explore, know … check the data … improve data quality

Rome, 26 april 2010
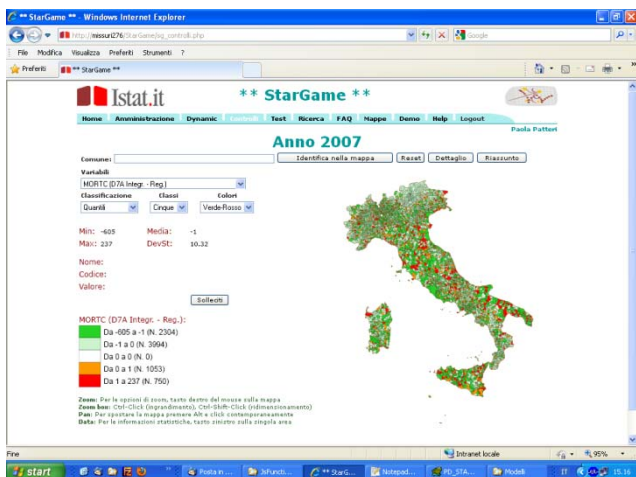
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StarGame: the prototype of a system

Causes of Death Survey

Dynamic municipality cartography to visualize
Quantitative data analysis

Monitoring and sending communication

Comparisons among different information sources
For each month and for each municipality
•The number of individual death certifications
(Istat forms D4, D5, D4bis, D5bis)
•The aggregated data from another different
demographic survey (Istat forms D6 e D7/A)

Causes of Death Survey

•Quality indicator visualization using dynamic cartography to analyse "critic" municipalities

•Identification of special groups of municipalities to send them automatized communications

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StarGame: the prototype of a system

Causes of Death Survey

One form for each municipality
- To print the form
- To acquire and modify information about reference people
- To acquire and modify quantitative data
- To send e-mail to reference people
- To trace the action
- To monitorize the different phases of the work using cartography
- To visualize data

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StarGame: the prototype of a system

Causes of Death Survey

Identified the municipalities or the institutions to be contacted is possible to:
Generate a personal document (.xls) that contains the data of the persons to be contacted
Create a file (*.zip*)
Send the enclosure attached to e-mail address memorized by the system
Send the personalized mail plus the enclosure

Quantitative analysis, dynamic cartography, interactive communication to:
Facilitate the process of checking data
Facilitate the monitoring of multichanneling acquisition
Facilitate the possible communication

Visualize, explore, know … check the data … improve data quality

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StarGame: the prototype of a system
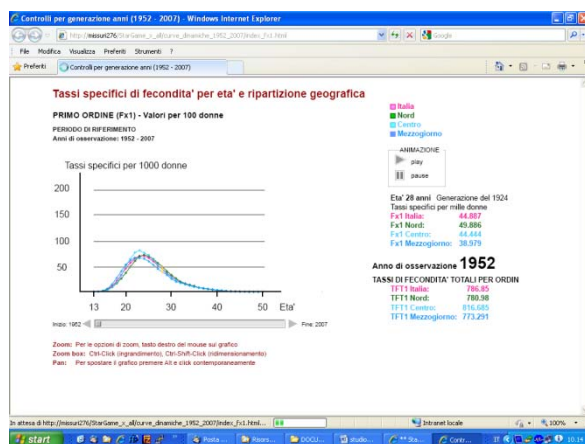

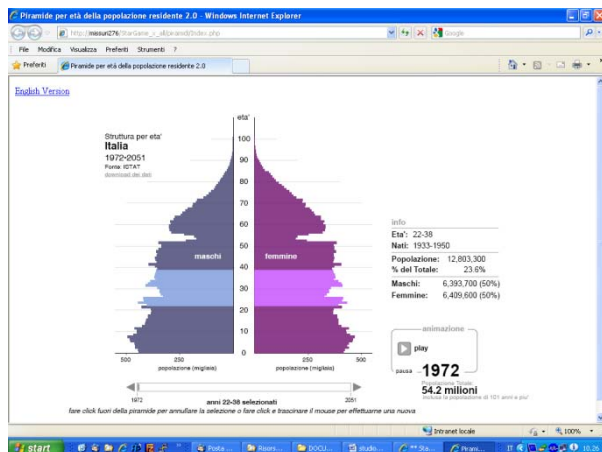**Qualitative data analysis**

Dynamic graphs for historical data

Fertility rates for Age and Geographic areas (1952-2007)

Dynamic curves to visualize
The recent past of the italian fertility

allowing qualitatitive data analysis before the dissemination

Visualize, explore, know … check the data … improve data quality … disseminate information

Rome, 26 april 2010

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Qualitative data analysis
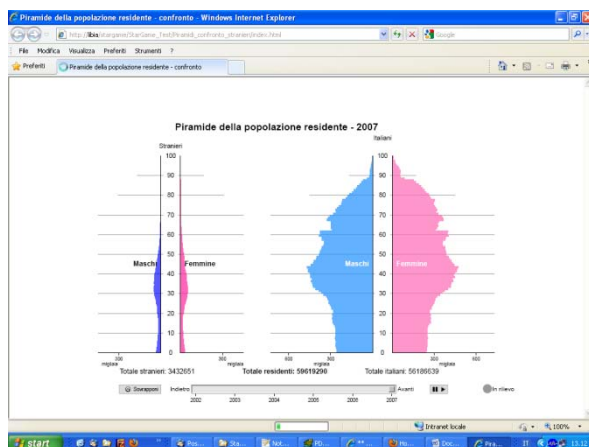
Dynamic demographic pyramids

to visualize Gender and Age structure

The analysed period is from 1972 to 2051
Historical data from 1972 to 2005
Demographic projections from 2006 to 2051

Allowing qualitative data analysis before their dissemination

**Visualize, explore, know … check the data, ….
improve data quality …
disseminate information**

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StarGame: the prototype of a system

Future developments of the prototype

•Implementing other dynamic graphs and cartography tools for historical and geographical production data analyses

•Implementing more monitoring functions and interactive communication functions related to surveys

•Georeferencing

•Other surveys

•Other analyses*:* Implementing dynamic net analysis for internal and international migration

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Production process of social and demographic analysis: from input to output

StarGame, a tool to support

•Quantitative and qualitative analyses of data from different sources in the production process
•Monitoring multichanneling acquisition and the development state of work
•Managing interactive communication with respondents and users

To each one his own system
But also

A unique catalogue that can be shared and updated containing information, communications, reference people
Based on a unique code for the analysis

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Production process of social and demographic analysis: from input to output

• *Dynamic visualization of phenomena allowing direct and interactive query and data analysis*
• *An integrated approach to analyse the problems who consider the internet potential along the various phases of process production*

May help to

• **Facilitate the sharing of information**
• **Facilitate Integration, Cooperation and Standardisation**
• **Improve knowledge and productivity**
• **Stimulate the "collective intelligence"**

Process products may become dissemination products

An integrated model to develop, produce and disseminate official statistics

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In conclusion:

**The use of internet and of visualization tools
is more common in data dissemination**
we have seen
Its use applied to the production system of statistical data

From input to output

Data collection, data validation, dissemination sharing tools

To optimise complex processes and to define specifications for generic tools

To meet the challenges that statistical producers are faced with

Rome, 26 april 2010

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