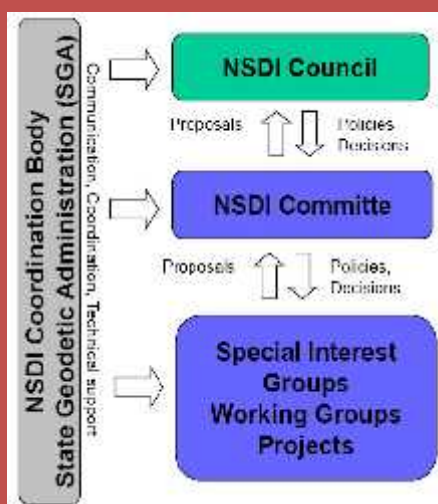


# Adaptation of the NSDI concept to the secondary school education requirements



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## Organisational structure



- WG for the NSDI technical standards
- WG for spatial data sharing policies
- WG for linking the NSDI program and e-Government
- WG for establishing a business model for the NSDI establishment
- **WG for building the NSDI establishment capacities**



## WG for building the NSDI establishment capacities

- 10 members representing state, regional and local government, self-government bodies and private sector
- meets on a regular basis every month as of October 2009
- its mission: efficient establishment of NSDI capacity building model - enables adoption of NSDI concept in society and its installation in work processes
- network of GIS/NSDI professionals - accelerate NSDI process

## Problems

- readiness of the user community to accept the NSDI concepts and integrate them in their working processes
- lack of GIS/NSDI professionals to provide the necessary expertise in order to implement the NSDI establishment process

## Tasks

- to identify weaknesses in capacity building for NSDI establishment and give best practices examples
- to build NSDI capacity building model
- to work on professional literature on NSDI
- to make proposals for NSDI subjects on different educational levels (schools, faculties etc...)
- to establish network and communication between educational institutions in Croatia and abroad

not enough information and knowledge on the  
representation of spatial data  
in the Croatian education system



**survey**



included secondary school educational institutions,  
faculties and research institutions  
in the Republic of Croatia

**Application of spatial data in  
secondary schools**



## AIM

- explore the representation of spatial data in the educational system, with special emphasis on the NSDI
- assess the knowledge on the use of spatial data that students receive during their schooling,
- determine whether the curriculum meets modern educational trends
- get teachers' recommendations for teaching improvements in the field of spatial data

Questions in the questionnaire were divided into the following topics:

### **I. topics related to spatial information in the curriculum**

#### **II. using spatial data in:**

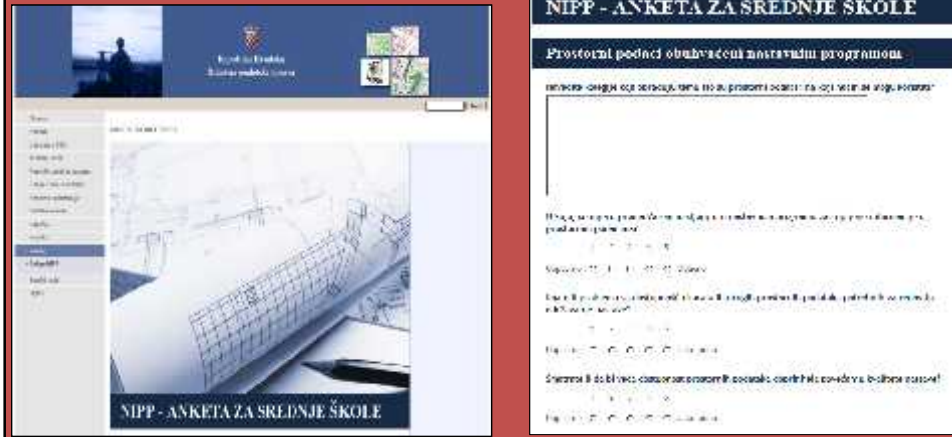
- a. the teaching activities
- b. extra-curricular activities

### **III. suggestions for improvement**



## The questionnaire

- consists of a header with an introduction and instructions, followed by 17 questions of combined type
- still on the webpage of the Croatian State Geodetic Administration ([www.dgu.hr](http://www.dgu.hr)) and all Croatian secondary schools are invited to participate



## Spatial data is used in the following subjects:

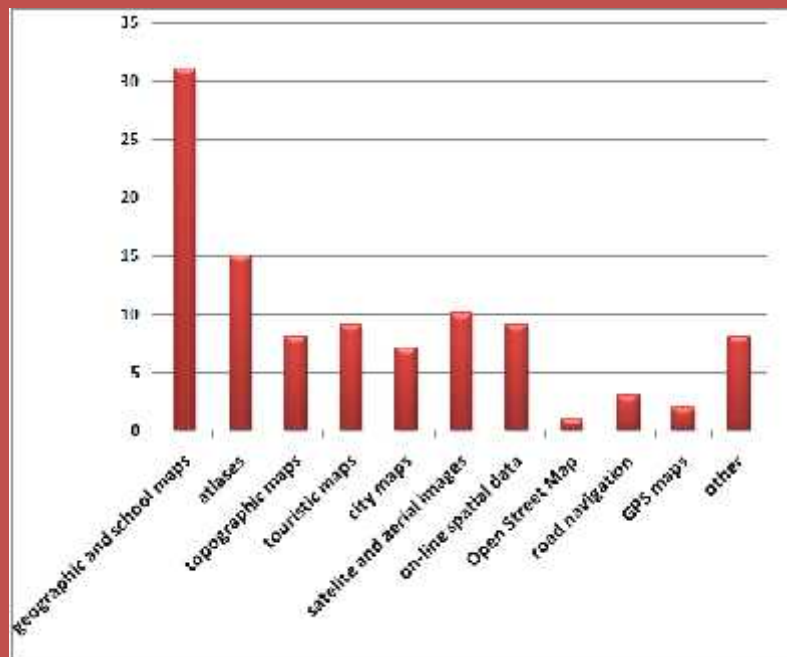
- Geography,
- Biology,
- Chemistry,
- Physics,
- Ecology,
- Geodesy,
- Geology,
- History,
- Biology,
- Croatian Language,
- Art...



## Use of spatial data in secondary school curriculum:

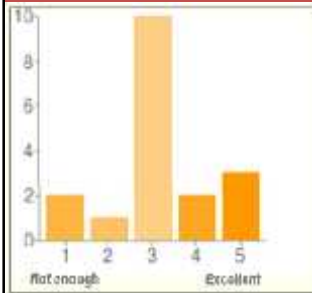
- geography and cartography
- calculating area
- geography of different countries, number of inhabitants,
- historical changes of boundaries, wars, making thematic land covers,
- maps of minerals and mines,
- maps of national minorities and religions in different regions,
- diseases in different regions,
- analyzing mortality and number of births in different regions,
- distribution and concentration of industries
- analyzing the changes of the infrastructure and traffic problems,
- making thematic maps after field collection of data,
- ...

## Use of spatial data in secondary school

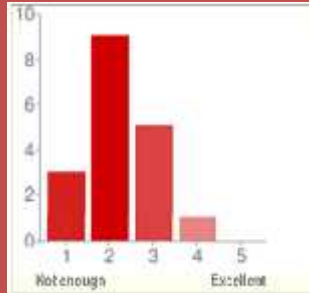


## Pupils' knowledge

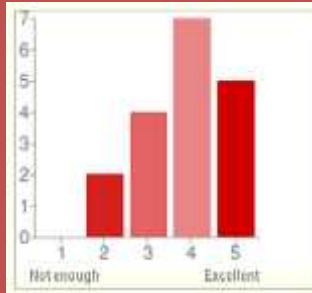
*Are pupils educated enough to be able to use maps?*



*Does education of pupils through regular teaching satisfies pupils' needs in usage of today's navigation tools?*

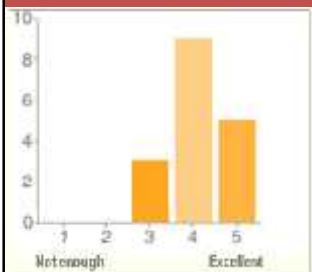


*Would higher interoperability of spatial data contribute to higher level of pupils' knowledge?*

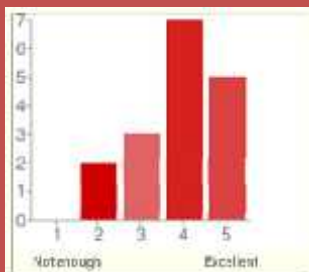


## Teacher education recommendations

*Would usage of spatial data and NSDI teachers' educational portal raise the quality of education?*



*Would guest lecturing as part of regular teaching on the subject of usage of spatial data and NSDI be useful for teachers and pupils?*



*Is it necessary to better inform teachers about spatial data and its usage?*





## Teachers' recommendations

### I. Education of teachers and pupils

- organizing practical workshops of experts in the NSDI fields,
- extending Croatian national e-learning portal using games, exercises and presentations on the NSDI topics (<https://lms.carnet.hr/lms/login.jsp?dd=1307379393696>)
- updating teachers with new sources of information of NSDI development
- organizing field education for teachers

### II. Connection of Internet pages (teachers/NSDI)

- making Internet link to teachers' educational Internet pages [www.skole.hr](http://www.skole.hr)



- connecting the NSDI portal with the national e-learning portal



### III. Higher interoperability of spatial data

- making available spatial data to teachers and teaching processes
- enabling higher interoperability of spatial data through Internet and other media
- ensuring lower prices of maps and navigation tools for schools

#### **IV. Extension of curriculum**

- introducing NSDI as a new subject in the curriculum

#### **V. Cooperation between schools and teachers with NSDI institutions and experts**

- ensuring better cooperation between teachers, secondary schools and NSDI institutions and experts

## **Conclusions**



- experience of teachers directly involved in the educational system of future GIS and NSDI specialists - great benefit (guidelines and recommendations)
- preliminary survey processing results show clear need for:
  - education of teachers,
  - higher spatial data interoperability,
  - cooperation
  - connection of internet pages on spatial data topics.
- recommendations and proposals for the introduction of courses at Geoinformatics and other secondary school programs at different educational levels,

**Thank you for your attention!**

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