

# CAPACITY BUILDING OF THE NSDI IN CROATIA

## Case study of secondary schools



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### Introduction

The Republic of Croatia has been intensively working on establishing a National Spatial Data Infrastructure (NSDI). User community readiness to accept the concepts of the National Spatial Data Infrastructure (NSDI) and use them in their working processes and the lack of GIS and NSDI experts who will provide the necessary level of expertise in the implementation process to establish the NSDI, are two crucial problems facing the Croatian NSDI.

Therefore, in July 2009 the NSDI Council adopted the Decision on establishing the NSDI Working Group on Capacity Building of NSDI. The basic goal of the Working Group on Capacity Building is to propose the most efficient ways of capacity building of NSDI for the purpose of training the users to accept the concept of NSDI and introduce it into the working processes.

One of the first steps undertaken by the Working Group on Capacity Building is a snapshot of the current situation. A survey was carried out because there is not enough information and knowledge on the representation of spatial data in the Croatian education system. The survey included secondary school educational institutions, faculties and research institutions in the Republic of Croatia.

This poster describes the preliminary results of research conducted among teachers of secondary education institutions in Croatia. We believe that teachers who participate directly in the education of secondary school students have the best overview of the knowledge and the awareness of new generations in the field of spatial data. They know how to improve the teaching process and transfer knowledge to future generations.

### Goals and tasks

The aim of the survey conducted among teachers of secondary educational institutions in the Republic of Croatia was to:

- explore the representation of spatial data in the educational system, with special emphasis on the National Spatial Data Infrastructure (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.

In the survey we decided to use the questionnaire of combined type. Some questions were open-ended, while the others were multiple choice questions. The questionnaire included a header with an introduction and instructions, followed by 17 questions.

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.

### Methodology

The survey included all the secondary schools in Croatia. The survey is made on-line on the webpage of the Croatian State Geodetic Administration <http://www.dgu.hr>.

### The survey and preliminary results

The survey was launched one month ago. It was sent to all secondary schools in Croatia. We are still waiting for some schools to respond. This is the reason why here presented results are just the preliminary survey results.



**NIPP - ANKETA ZA SREDNJE ŠKOLE**

**Prostorni podaci obuhvaćeni nastavnim programom**

Navedite kolegije koji obrađuju temu što su prostorni podaci i na koji način se mogu koristiti?

U kojoj su mjeri, prema Vašem mišljenju, u nastavnom programu zastupljene informacije o prostornim podacima?

1 2 3 4 5

Uopće ne      Odlično

Imate li problema sa dostupnošću karata ili drugih prostornih podataka potrebnih za redovito održavanje nastave?

1 2 3 4 5

Uopće ne     Jako puno

Smatrate li da bi veća dostupnost prostornih podataka doprinijela povećanju kvalitete nastave?

1 2 3 4 5

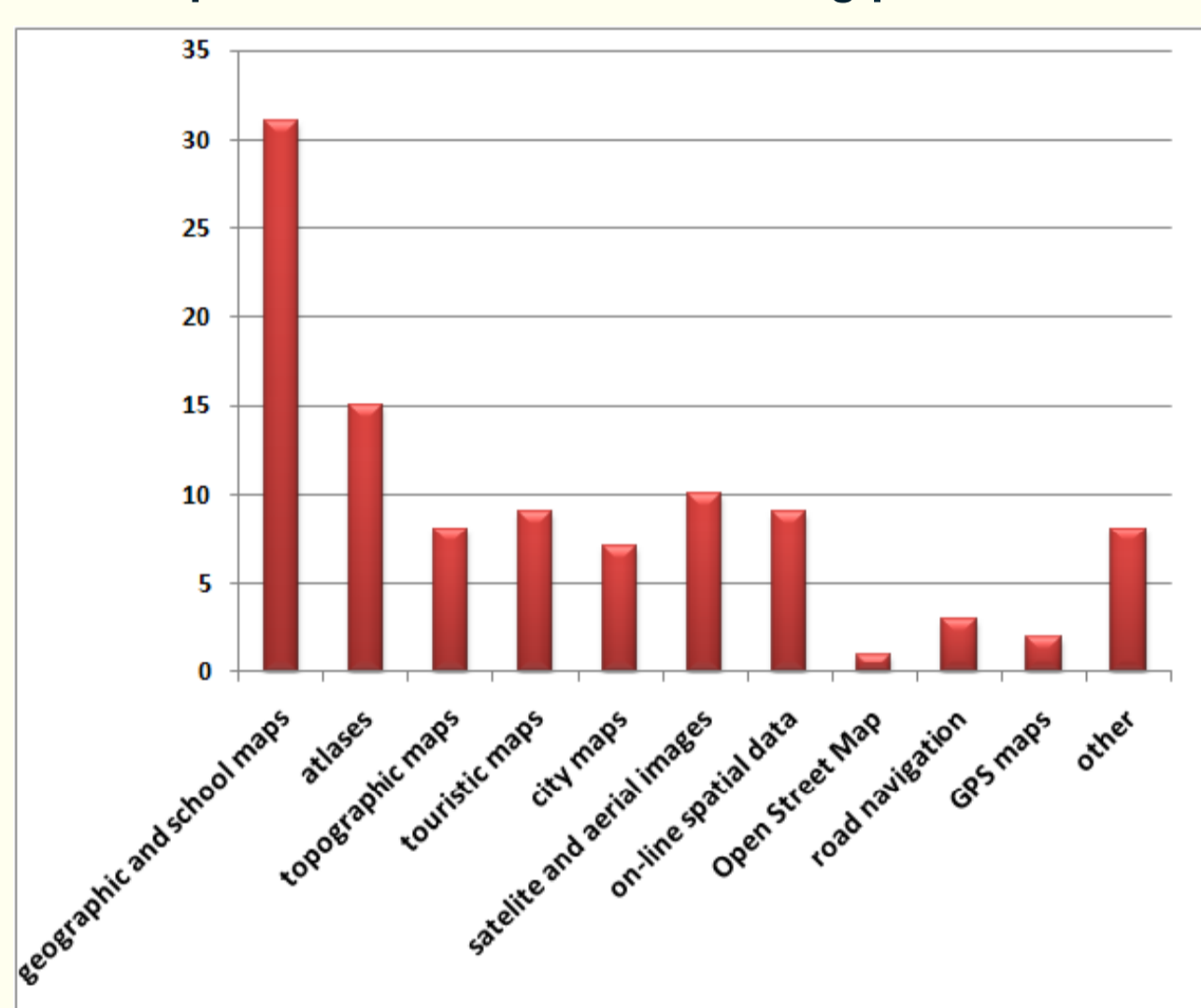
Uopće ne     Jako puno

### Application of spatial data in secondary schools

#### In what subjects is spatial data used?

geography, biology, chemistry, physics, ecology, geodesy, geology, history, biology, Croatian language, art...

#### What spatial data is used in teaching processes?

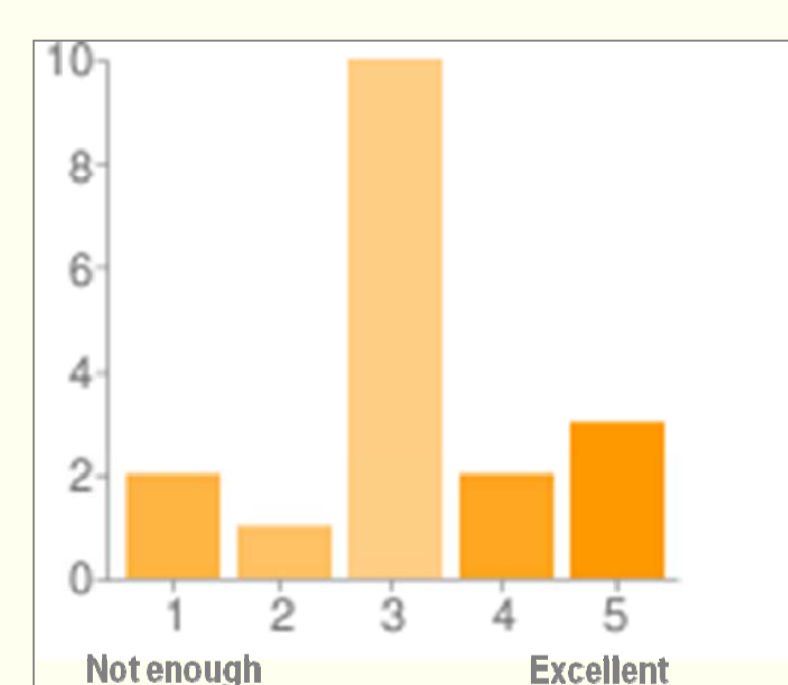


#### Some of the usage of spatial data in secondary schools curriculums are:

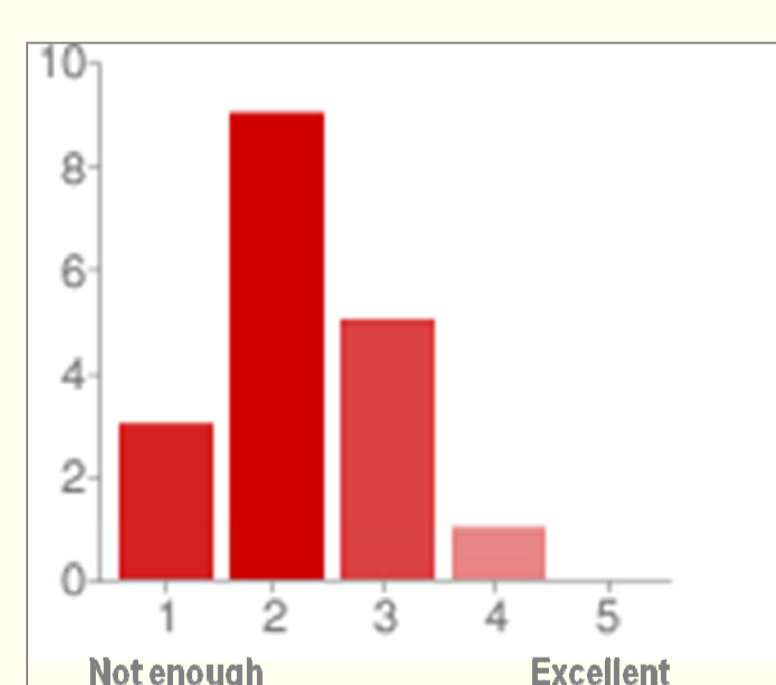
- geography and cartography
- calculating area
- geography of different countries, number of inhabitants, historical changes of boundaries, wars, making thematic land covers,
- maps of minerals and mines,
- maps of national minorities and religions in different regions,
- diseases in different regions,
- 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 filed collection of data.

### Pupils' knowledge

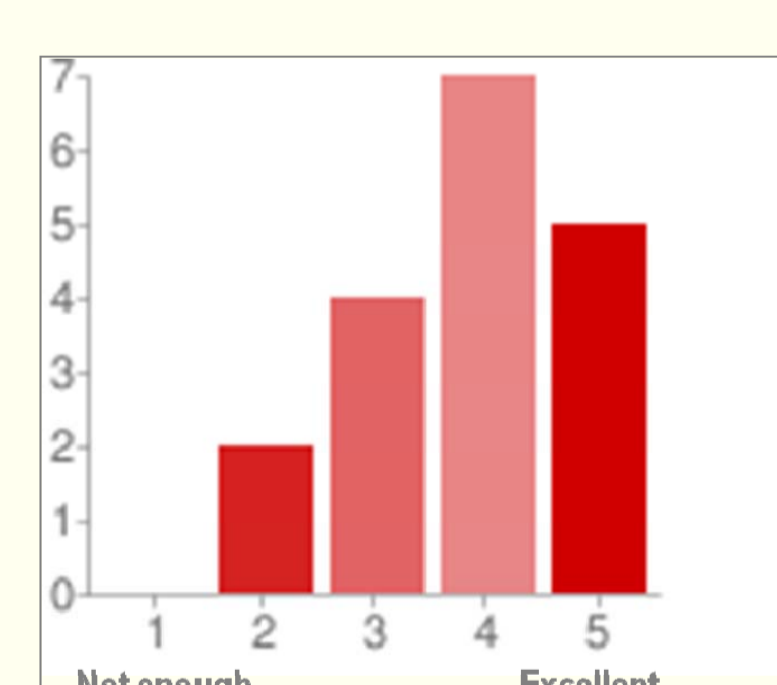
Are pupils educated enough to be able to use maps?



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

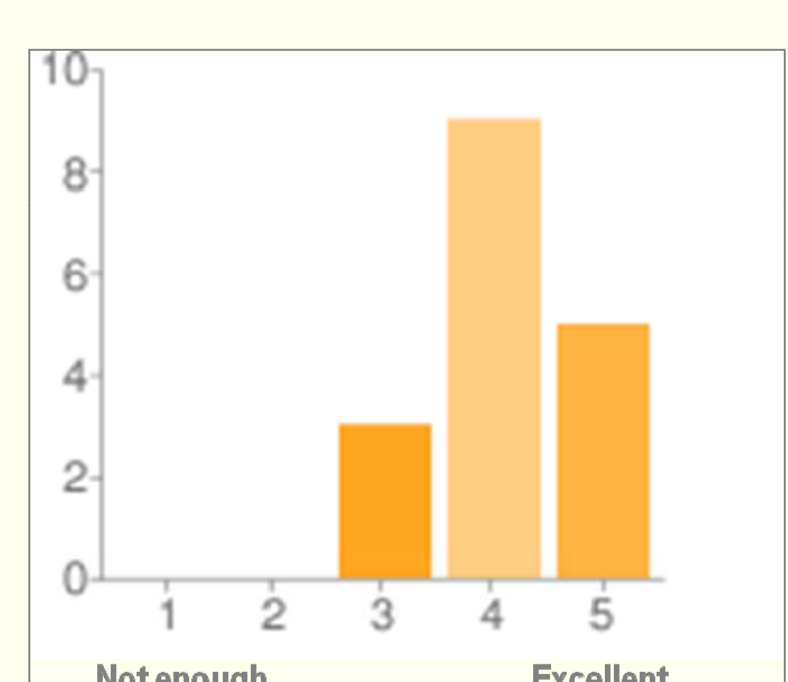


Would higher interoperability of spatial data contribute to higher level of pupils' knowledge?

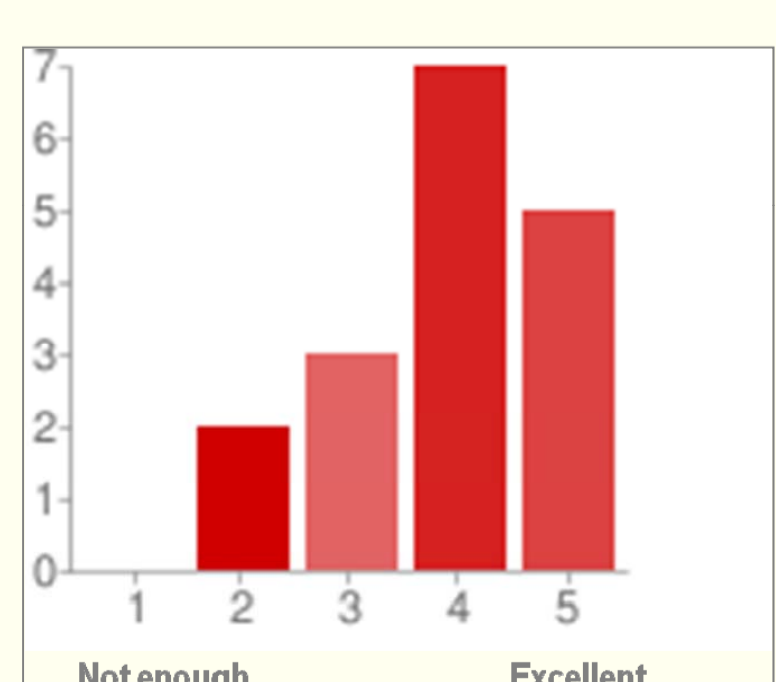


### Teacher education recommendations

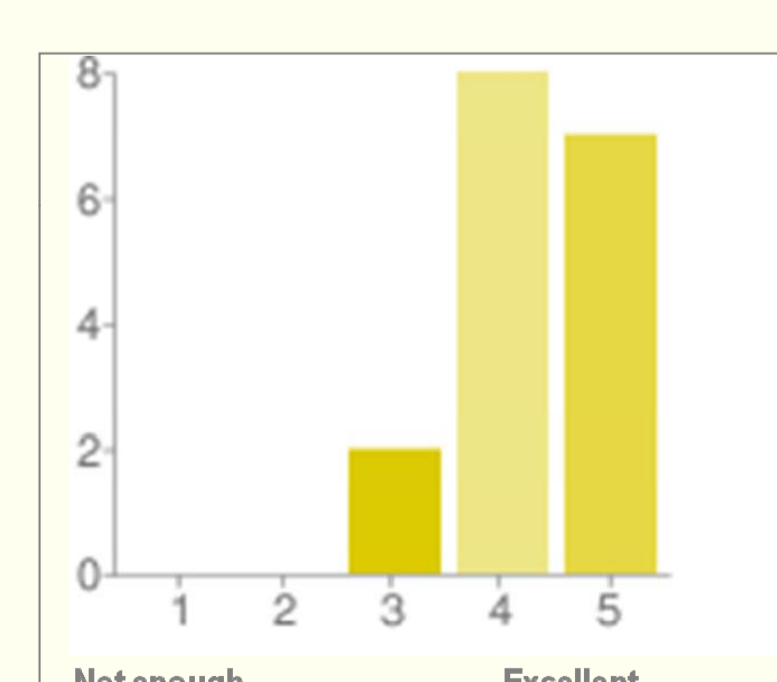
Would usage of spatial data and NSDI teachers' educational portal raise the quality of education?



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

So far the survey has given us some preliminary results, but they have already provided a clear view of the teachers' needs. They made very constructive recommendations that can be systemized in a few topics:

#### I. Education of teachers and pupils

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

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

- to make Internet link to teachers' educational Internet pages [www.skole.hr](http://www.skole.hr)
- to connect the NSDI portal with the national e-learning portal

#### III. Higher interoperability of spatial data

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

#### IV. Extension of curriculum

- to introduce NSDI as a new subject in the curriculum

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

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

### Conclusions and future work

The experience of teachers who are directly involved in the educational system of future GIS and NSDI specialists is of great benefit. They helped us in developing guidelines and recommendations on how to intervene in order to successfully build the capacity of NSDI.

The preliminary survey processing results showed clear needs of teachers for education, higher spatial data interoperability, cooperation needs and connection of internet pages on the spatial data topics.

The first survey results made clear direction of the recommendations of the NSDI Working Group on Capacity Building. They are going to be according to education and higher interoperability needs of spatial data in the educational processes in secondary schools.

Along with recommendations and proposals for the introduction of courses at geoinformatics and other secondary school programs at different educational levels, the Working Group on Capacity Building is going to produce guidance for capacity building of NSDI in the Republic of Croatia.

### Contact information

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