

# 24/7 NATIONAL WEB SYSTEM FOR DANUBE STRATEGY DATA INFRASTRUCTURE FOR COLLECTING, ANALYZING AND TRANSFERRING INFORMATION BETWEEN NEXUS CLUSTERS

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NATIONAL LABORATORY OF COMPUTER VIROLOGY



● Wireless Security

● Data Security

● Cryptographic Security

● Computer Security

● Steganographic Security

● Communication Security

● Mobile Device Security

● Operating System Security

● Application Security

● Web Security

● Emission Security

● Email Security

● Cloud Security

● Virtual Security

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**24/7 NATIONAL WEB SYSTEM FOR  
DANUBE STRATEGY DATA INFRASTRUCTURE**



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# 1.1. MISSION



## National Laboratory of Computer Virology – BAS

### SPECIALIZED SCIENTIFIC UNIT:

- fundamental and applied research;
- expert advice and activities;
- application of scientific results;
- preparation of highly qualified professionals

### AREAS

- creation and the study of mathematical and heuristic methods and tools for analysis and evaluation of computer viruses and malware;
- creation and the update of existing databases / knowledge bases about computer viruses;
- creation and the study of principally new methods for computer security and antivirus protection;
- approbation of national and international software and hardware methods and tools for computer security and antivirus protection.

# 1.2. MAIN DIRECTIONS



## ● National Laboratory of Computer Virology – BAS

• WIRELESS SECURITY

• MOBILE DEVICE SECURITY

• OPERATING SYSTEM SECURITY

• DATA SECURITY

• CRYPTOGRAPHIC SECURITY

• APPLICATION SECURITY

• COMPUTER SECURITY

• WEB SECURITY

• STEGANOGRAPHIC SECURITY

• COMMUNICATION SECURITY

• EMISSION SECURITY

• E-MAIL SECURITY

• CLOUD SECURITY

• VIRTUAL SECURITY



# 1.3. MAIN PRIORITIES

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## RESEARCH AND CLASSIFICATION OF NEWLY EMERGING VIRUSES;

### METHODS AND MEANS FOR:

- discovering and removing of computer viruses (malware, malattacks);
- data recovery;

### RESEARCH IN THE FIELD OF:

- standards for encoding and encryption;
- systems for access control;
- client/server applications.

# 1.4. METHODS OF EXAMINATION



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EVALUATE THE IMPACT OF THE OPERATING

EVALUATION OF A CLASS OF VIRUSES

CREATION OF ANALYTICAL MODELS

OPTIMIZATION PROCESSES

CREATION OF SIMULATION MODELS

ALGORITHMIC SOLUTIONS AND PROGRAM  
IMPLEMENTATIONS FOR A CLASS OF VIRUSES;

# 1.5. PUBLIC TOPICS WITH INTERNATIONAL AND NATIONAL CONTRACTING AUTHORITIES



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RESEARCH AND EVALUATION OF METHODS FOR NETWORK PROTECTION

ASSESSMENT OF THE SPREAD OF COMPUTER VIRUSES

IMPACT OF OPERATIONS ON THE VIRULENCE OF SELF-MUTATING COMPUTER VIRUSES

COMPOSITION, THE STRUCTURE AND THE SPREAD OF COMPUTER VIRUSES

STUDY OF OPTIONS FOR TARGETING NON-STANDARD CONFIGURATIONS OF THE TYPE CLIENT-SERVER;

EVALUATION OF INFORMATION SECURITY OF CORPORATE DESKTOP, NOTEBOOK AND MOBILE SYSTEMS;

SPECIFIC PROCESSING OF STEGO-OBJECTS IN ORDER TO ENSURE THE STABILITY IN PUBLIC ENVIRONMENT

METHODS FOR ASSESSING OF CRITICAL INFRASTRUCTURE WORKING IN INTERNET ENVIRONMENT

# 1.6. THE PUBLIC INTERNATIONAL AND NATIONAL PROJECTS



## ● National Laboratory of Computer Virology – BAS

- Generation of algorithms for control sums used in the modules ensuring data security
- Analysis and assessment of computer security in network environment
- Establishing of procedures for checking the communication security of corporate communication equipment
- Experimental studies of system security for non-standard system configurations in corporate organizations
- Approbation of hardware and software tools used to meet international standards in the field of information security
- Ordered tests for analysis and assessment of the security of end user high frequency wireless equipment
- Research related to the verification of the complete life cycle and the full crypto-procedures used to assess the cryptographic security of the corporate software tools
- Rules for processing graphics and sound objects and their respective evaluation regarding the stegano-security
- Analysis and evaluation of objects in Internet / Extranet / Intranet critical infrastructure

# 1.7. EDUCATION ACTIVITIES



## ● National Laboratory of Computer Virology – BAS

### CONSULTATIONS AND EXPERT ASSISTANCE:

- computer security;
- communication security;
- information security.

### CONSULTED PERSONS INCLUDES:

- ministries;
- agencies;
- commissions, etc.

### EXPERT ADVICE AND ASSISTANCE:

- Presidency,
- Council of Ministers,
- National Assembly,
- region and municipal authorities throughout the country.



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## **2. NLCV – BAS AND JRC COLLABORATION**

**2.1. DANUBE BIO-ENERGY NEXUS**

**2.2. DANUBE LAND AND SOIL NEXUS**

**2.3. DANUBE WATER NEXUS**

## 2.1. DANUBE BIO-ENERGY NEXUS



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- *Extension of National Renewable Energy Action Plan (NREANP) databases to non-EU countries of the Danube Region through data NREAP's developed or going to be developed by some Danube countries;*
- *Detailed maps of some resources potential can be finalised and made available as a base of data for a geographically explicit vision of bioenergy resources and their impact as described in the factsheet.*

## 2.3. DANUBE LAND AND SOIL NEXUS



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- ***Harmonized data collection and monitoring***
  - Development of harmonised soil sampling programme for non-EU countries in the Danube river basin based on the JRC's LUCAS methodology;
  - Development of benchmark soil sites to assess changes in soil properties;
  - Focused collection of soil contamination data for Danube Region.

## 2.3. DANUBE WATER NEXUS



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- Work package Database development, in particular in the creation of Danube Reference Data and Services Infrastructure (DRDSI).
  - Database development
  - Hydro-economic modeling
  - Scenario analyses



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# NATIONAL DSDI WEB SYSTEM



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**NDSDI**



**Scientific Networks**



**Scientific Clusters and  
their relationships**

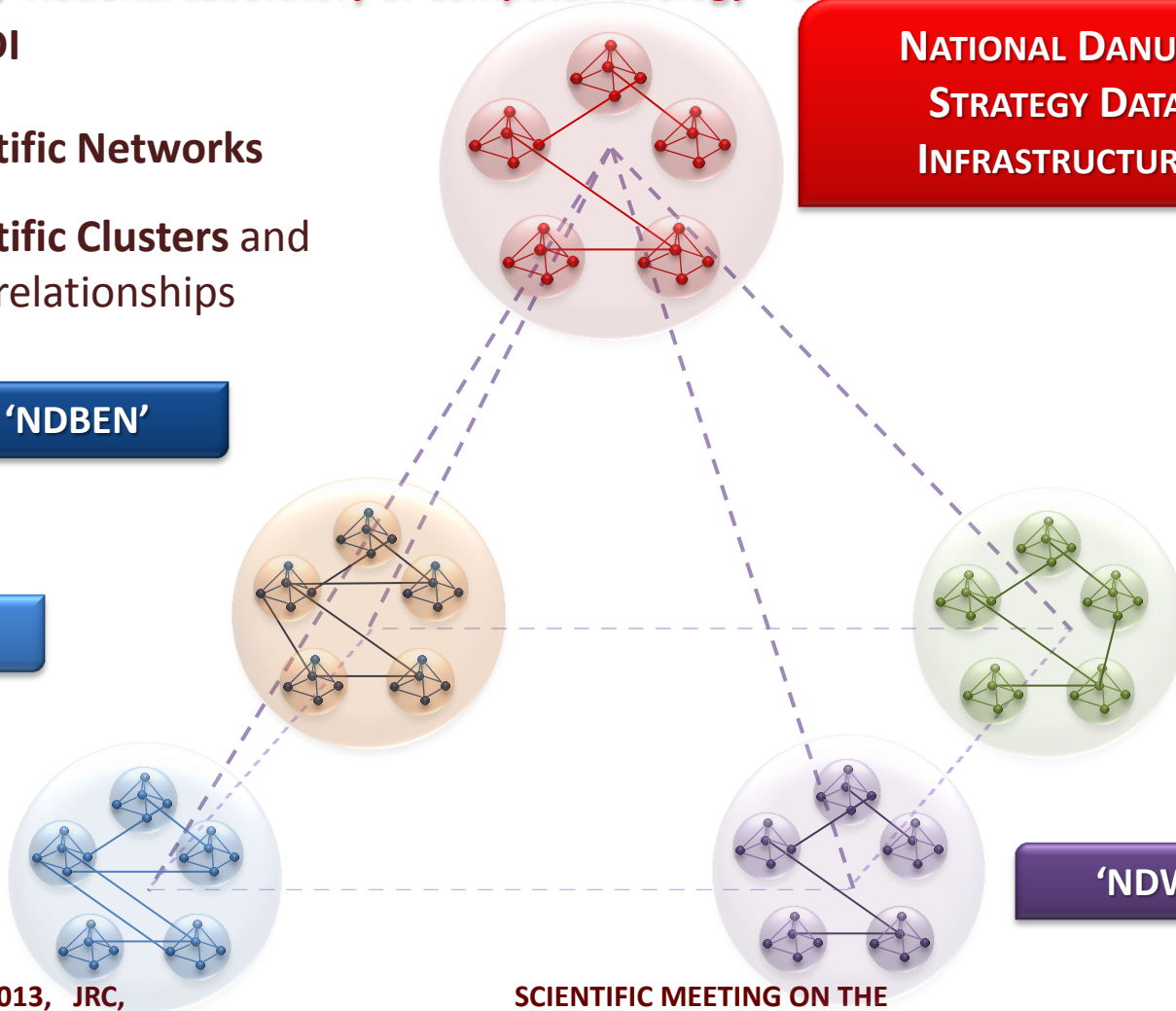
**NATIONAL DANUBE  
STRATEGY DATA  
INFRASTRUCTURE**

**'NDBEN'**

**'NDAN'**

**'NDLSN'**

**'NDWN'**



# NATIONAL DSDI WEB SYSTEM



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## NATIONAL WEB SYSTEM FOR DANUBE STRATEGY DATA INFRASTRUCTURE

- transfer data to EC;
- decision making.

## NLCV – BAS MOTIVATION

- Experience in the field of scientific and applied expertise with respect to information, network and cyber security.
- Experience in creating and maintaining databases and web resources connected with the collection, analysis and modeling of data from sensors located in the air, water and soil.

## SUPPORT OF BULGARIAN ACADEMY OF SCIENCES FOR NATIONAL DANUBE STRATEGY DATA INFRASTRUCTURE.



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**THANK YOU FOR  
YOUR ATTENTION!**

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