EKT’s Roadmap on Research Information Management in Greece

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Outline

- Overview of the Greek research ecosystem and metrics
- Current CRIS infrastructure in Greece
- Greek R&D Projects & Funds System as CRIS
- Greek R&D Statistics Management System as CRIS
- Greek CRIS Infrastructure – Next Steps
Greece Research Metrics - Identity

- R&D Intensity (R&D Expenditure as % GDP): 0.81
- Intramural R&D Expenditure (million EUR): 1,465.7
- R&D Personnel (Head count): 82,684
- R&D Personnel (Full-time equivalent): 42,187.6
- Researchers (Head count): 53,744
- Researchers (Full-time equivalent): 29,228.2

Greece Research Metrics - Global Comparison

**Figure 1-2.** R&D Expenditure (in million EUR) in Greece and in other EU28 Member States, 2013

- Germany: 79,729.5 million EUR
- France: 67,480.5 million EUR
- United Kingdom: 33,998.7 million EUR
- Italy: 20,983.1 million EUR
- Sweden: 14,406.2 million EUR
- Spain: 13,011.8 million EUR
- Netherlands: 12,743.4 million EUR
- Austria: 9,571.3 million EUR
- Belgium: 9,545.7 million EUR
- Denmark: 7,803.0 million EUR
- Finland: 6,684.1 million EUR
- Poland: 3,436.3 million EUR
- Czech Republic: 2,996.7 million EUR
- Ireland: 2,756.3 million EUR
- Portugal: 2,258.5 million EUR
- Greece: 1,465.7 million EUR
- Hungary: 1,415.1 million EUR
- Slovenia: 935.0 million EUR
- Slovakia: 610.9 million EUR
- Luxembourg: 605.7 million EUR
- Romania: 557.8 million EUR
- Croatia: 354.7 million EUR
- Lithuania: 332.4 million EUR
- Estonia: 326.0 million EUR
- Bulgaria: 266.7 million EUR
- Latvia: 139.8 million EUR
- Cyprus: 83.8 million EUR
- Malta: 64.2 million EUR

**Figure 1-3.** R&D Personnel and Researchers (in Head counts) in Greece and in other EU28 Member States, 2013

- Germany: 549,283 R&D Personnel; 860,842 Researchers
- United Kingdom: 466,689 R&D Personnel; 610,276 Researchers
- France: 366,299 R&D Personnel; 575,351 Researchers
- Italy: 208,767 R&D Personnel; 333,134 Researchers
- France: 110,535 R&D Personnel; 185,235 Researchers
- Poland: 109,611 R&D Personnel; 145,635 Researchers
- Sweden: 101,820 R&D Personnel; 133,906 Researchers
- Austria: 71,448 R&D Personnel; 117,043 Researchers
- Belgium: 66,724 R&D Personnel; 100,423 Researchers
- Portugal: 78,290 R&D Personnel; 95,347 Researchers
- Czech Republic: 51,455 R&D Personnel; 92,714 Researchers
- Denmark: 57,654 R&D Personnel; 85,165 Researchers
- Greece: 53,744 R&D Personnel; 82,684 Researchers
- Hungary: 37,803 R&D Personnel; 58,237 Researchers
- Romania: 27,600 R&D Personnel; 43,375 Researchers
- Ireland: 25,393 R&D Personnel; 41,088 Researchers
- Slovakia: 24,441 R&D Personnel; 27,823 Researchers
- Lithuania: 18,083 R&D Personnel; 22,751 Researchers
- Bulgaria: 16,095 R&D Personnel; 22,307 Researchers
- Slovenia: 12,111 R&D Personnel; 21,272 Researchers
- Croatia: 11,168 R&D Personnel; 17,003 Researchers
- Latvia: 7,448; 10,326 Researchers
- Estonia: 7,515; 10,284 Researchers
- Cyprus: 2,209; 2,978 Researchers
- Malta: 1,437; 2,293 Researchers
Greece Research Metrics - Regional Analysis

FIGURE 4-2. R&D Intensity (R&D Expenditure as % of GDP) by NUTS2 regions, 2013

FIGURE 4-1. R&D Expenditure (in million EUR) by NUTS 2 regions, 2013
Greece Research Metrics - Sector Distribution

**FIGURE 2-1: R&D Expenditure (in million EUR) by sector of performance, 2013**

- **BES**: 488.7 million EUR
- **GOV**: 410.1 million EUR
- **HES**: 548.6 million EUR
- **PNP**: 18.3 million EUR
Greek CRIS infrastructure – current state

Diagram:
- National Documentation Centre
  - Hellenic Aggregator of Research Information
    - Aggregator
    - Validator
    - Harvester
  - CERIF-XML
    - API
      - CERIF CRIS
        - Research Organization X
    - API
      - CERIF CRIS
        - Research Organization Y
    - API
      - CERIF CRIS
        - Research Organization Z
Greek CRIS infrastructure – current state

• Each organization operates its own institutional CRIS system
  o Policies, procedures and workflows at the institutional level
• All institutional CRIS systems are based on the same CRIS software platform
• CRIS software developed by EKT (CERIF CRIS)
• A central aggregator will provide a unified point of access to the entire information
• CERIF XML/REST is used for interoperability
Greek CRIS infrastructure – current state

• EKT provides support to institutions
  o CRIS software – including documentation for installation, configuration, usage
  o Online helpdesk for support (http://helpdesk.cris.ekt.gr)
  o Software distribution system
    ▪ Including certification procedure, notifications for new releases, versioning
  o Semantics – vocabularies
  o Tools for data import to the CERIF database
    ▪ CERIF XML
    ▪ Excel / CSV and Dublin Core through an open source library (Biblio-transformation-engine, BTE)
Greek R&D Projects & Funds System as CRIS

• Compiled a national registry of R&D Projects based on CERIF standard
  o EC and Greek funded R&D projects included
  o Projects from other funding schemes are managed as well

• Scope
  o Act as the National Registry of R&D projects providing knowledge to policy makers, researchers, businesses and the public
  o Provide smart search capabilities to businesses and researchers to collaborate
  o Used for benchmarking the collected micro-data for the national R&D statistics survey
  o Act as a data hub for automated data retrieval/submission from/to the institutional CRISs
  o Customized reporting for internal and/or external demands

• Data Entities involved
  o Projects, Funding Schemes, Organisations (Funders + R&D Performers), Products
  o Classifications (e.g. FOS, NABS, project types, organisation types, regional metadata, NACE etc.)
  o R&D Indicators (e.g. national R&D expenditure & personnel)
Greek R&D Projects & Funds System as CRIS
Greek R&D Statistics Management System as CRIS

- R&D Data Management System (DMS)
  - Stores, interconnects and manages
    - Greek R&D Expenditure and Personnel data as collected via online data collection system (Eurostat - Commission Regulation 995/2012)
    - Organisations’ profiles stored in the RDI national registry
    - Indicators as produced from primitive data
    - External R&D data sources as managed by EKT (e.g. FP7 projects etc.)
  - Goals
    - Single management point
    - Preservation and archiving (time series)
    - Data validation & estimation workflow
    - Benchmarking using external sources
    - Real time automated generation of indicators
    - Data exports (SDMX, CSV, Excel, JSON, CERIF-XML)
    - Reporting
Greek CRIS Infrastructure – Next Steps

• **Integration Action at Organizational level**: creation of a national research information management board with representatives from ministries / research management addresses, public research financiers, operators with operational / technical expertise and research and academic institutions (Universities, research centers, etc.)

• **Integration Action at Operational level**: establishing common code of operation, adoption of common standards and research information management methodologies

• **Integration Action at Technological level**: developing additional technological infrastructure for seamless integration of all research bodies regardless CRIS system under use
Greek CRIS Infrastructure – Vision

National Documentation Centre
Hellenic Aggregator of Research Information

- Aggregator
- Validator
- Harvester

Data warehouse & Business Analytics

CERIF-XML

API
CERIF CRIS
Research Organizations

CERIF Reference Infrastructure
CERIF CRIS
Research Organizations

API
Greek R&D Projects & Funds CRIS
National

API
Greek R&D Statistics Management CRIS
National
Thank you for your attention

Q&A

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