



REPUBLIC OF CROATIA
Ministry of Science and
Education



srce

University of Zagreb
University Computing Centre - SRCE



Croatian National CRIS

Advances and Challenges

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Europska unija
Zajedno do boljitka EU



EUROPSKI STRUKTURNI
I INVESTICIJSKI FONDOVI



Operativni program
KONKURENTNOST
I KOHEZIJA



Project Info

The *Scientific and Technological Foresight* Project

- Led by Ministry of Science and Education, with Srce as a partner
- Approx. 2M €, 85% funded by EU
- Three main components:
 - Legal adjustments regarding the data about research in Croatia
 - Development and implementation of CroRIS
 - Scientific and technological mapping and foresight exercise



ZNANSTVENO I TEHNOLOGIJSKO
PREDVIĐANJE

Work on CroRIS

- Planning
- Development
- Data cleansing and migration
- Integrations
- Promotion
- Education
- Maintenance and further development

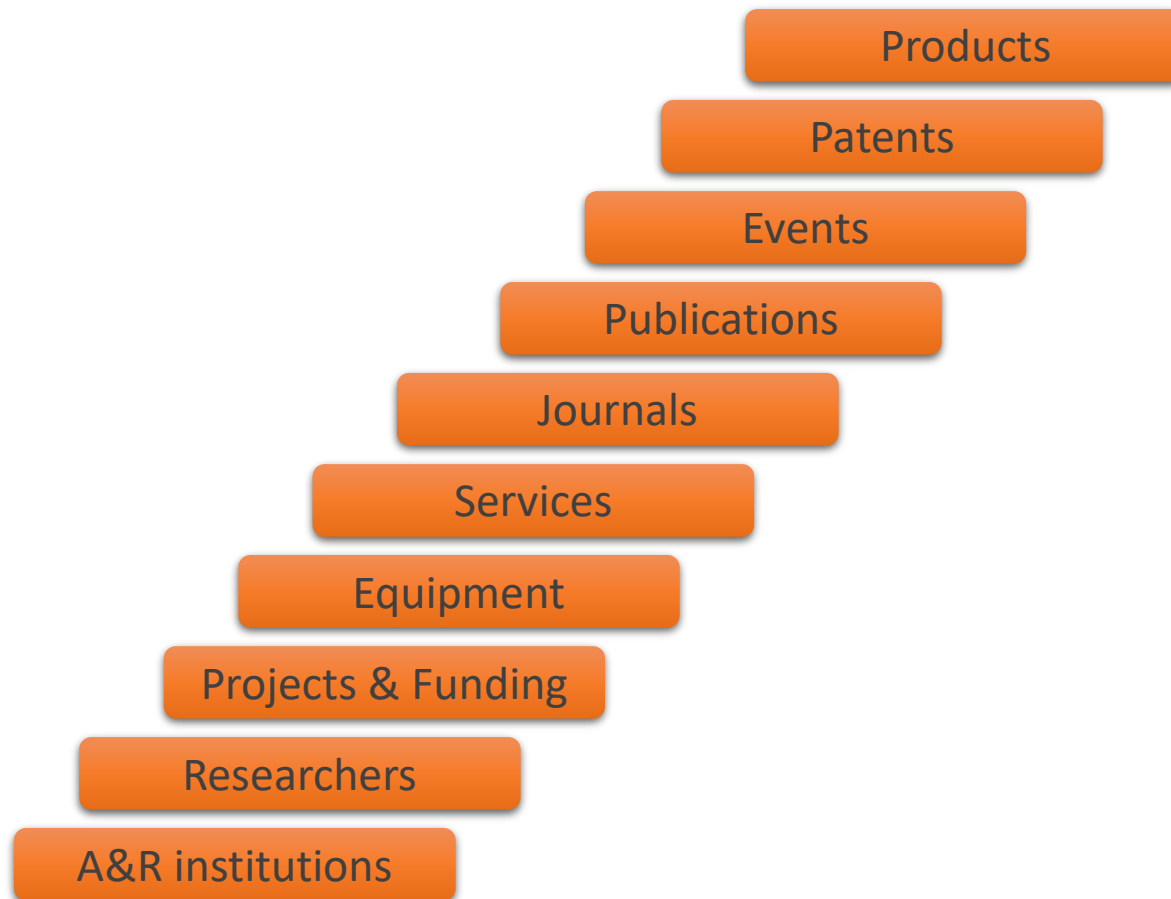


Our Vision of CroRIS

CroRIS will

- ensure comprehensive and accurate data about all elements of the research system in Croatia
- be the decision-making ground when it comes to research, on all levels
- enable and promote open science
- efficiently support business processes on all levels (MSE, institutions, researchers, ...)
- be open and interoperate with other systems (national and international)
- integrate existing information and incorporate them into unique and sustainable information system
- enable the connection between research and the real sector

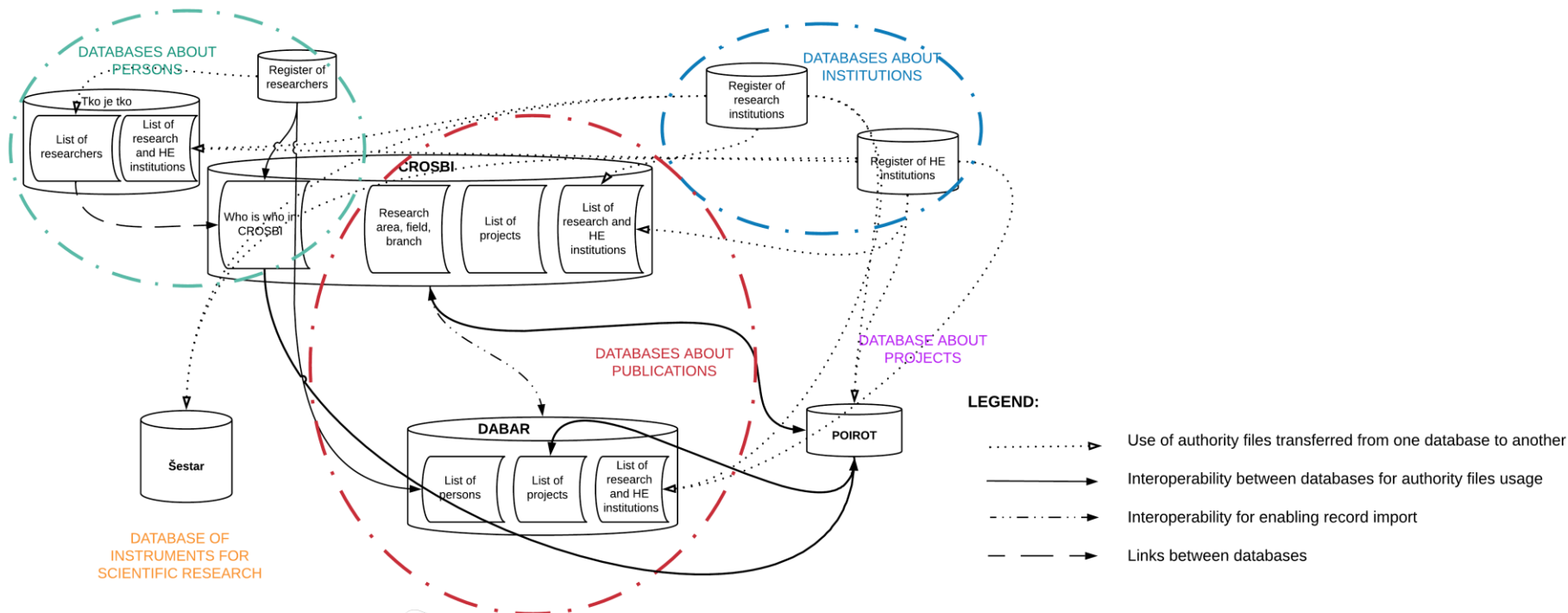
Entities



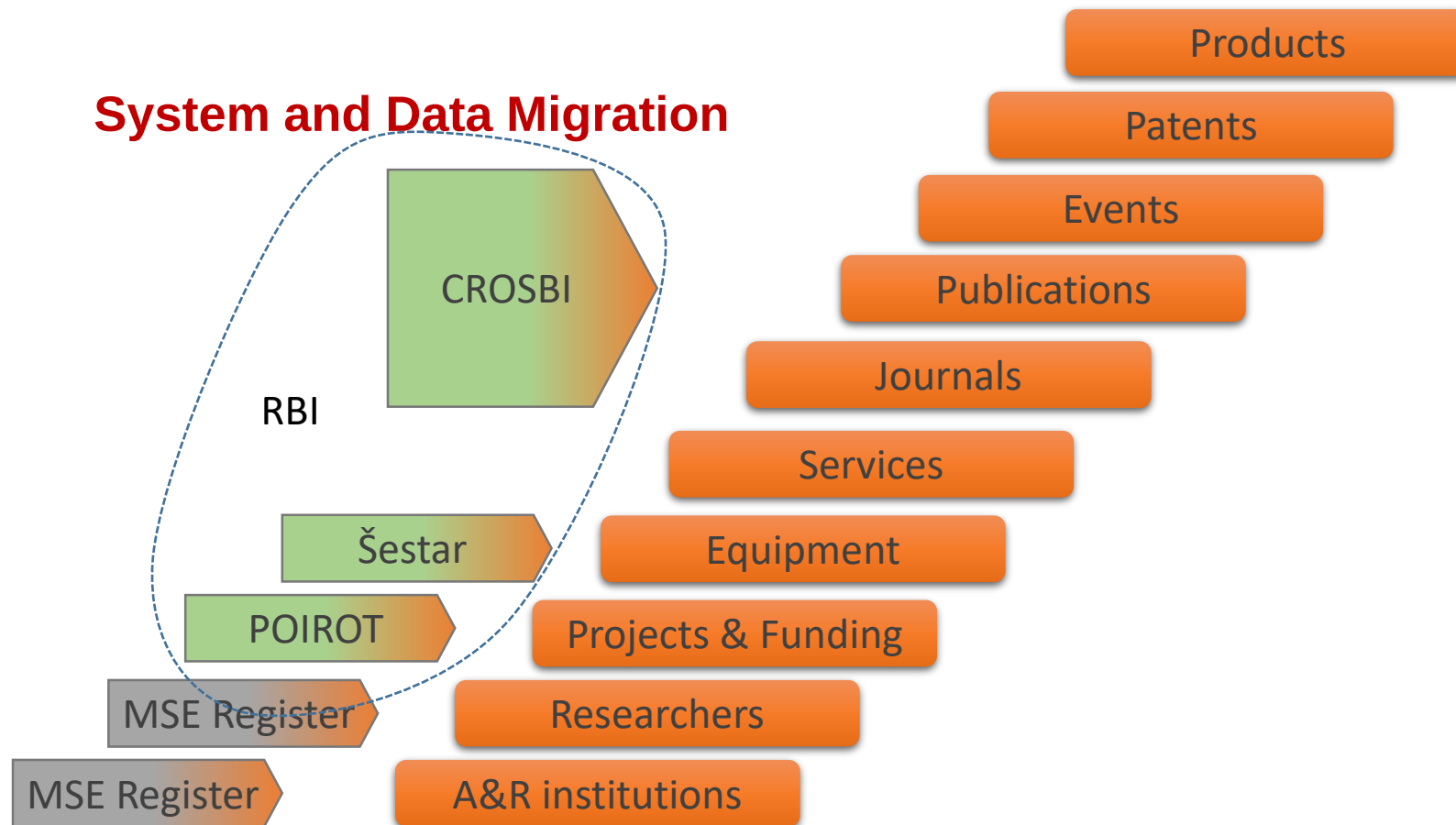
```
mirror_mod = modifier_ob.  
#set mirror object to mirror  
mirror_mod.mirror_object =  
operation == "MIRROR_X":  
mirror_mod.use_x = True  
mirror_mod.use_y = False  
mirror_mod.use_z = False  
operation == "MIRROR_Y":  
mirror_mod.use_x = False  
mirror_mod.use_y = True  
mirror_mod.use_z = False  
operation == "MIRROR_Z":  
mirror_mod.use_x = False  
mirror_mod.use_y = False  
mirror_mod.use_z = True  
  
#selection at the end -add  
mirror_ob.select= 1  
modifier_ob.select=1  
context.scene.objects.active  
("Selected" + str(modifier  
mirror_ob.select = 0  
= bpy.context.selected_obj  
data.objects[one.name].se  
print("please select exactly  
  
--- OPERATOR CLASSES ---  
  
types.Operator):  
X mirror to the selected  
object.mirror_mirror_x"  
mirror X"  
  
context):  
context.active_object is not
```

Development Challenges

Croatian Research Information Landscape Before CroRIS



System and Data Migration



System and Data Migration challenges

- Data model migration
- Vocabularies migration
- Cleansing the data
- Taking care of active integrations to other systems during migration (API migration)

CERIF Model

- CERIF – Common European Research Information Format
- Why CERIF?
 - standards based: SQL + XML
 - in comparison to more abstract/rich generic semantic frameworks it was simple
 - designed from ground up as a relational data model - our area of expertise
 - extremely flexible: capable of modeling and meta-modeling just about any high-level concept using its semantic layer
 - support for vocabulary formalization: key enabling point for EU-wide (potentially global) CRIS systems standardization and interoperability

CERIF Challenges

- Temporal aspect
 - Temporal support in relational databases is defined in the SQL:2011 standard, but current RDBMSs are yet to implement it in this regard
 - We kept some of the temporal information on some entities, disregarded the rest
- Too complex for everyday developer use
 - Since information consist of data which is stored in many relations, we ended wrapping CRUD operations in database views or stored procedures
- Over-/under-semantical
 - We removed some part of the semantic layer which was used only to confirm the existence of the entity
 - Some classifications needed extra attributes, so those schemas became separate vocabularies
- Too strict in some parts of the model (mandatory attributes etc.)
- We also extended it with a number of attributes and tables needed for our use

D. Kremenjaš, P. Udovičić, O. Orel, Adapting CERIF for a national CRIS: A case study, in: 2020 43rd International Convention on Information, Communication and Electronic Technology (MIPRO), IEEE, 2020, pp. 1633–1638.



Implementation
into community

Data Entry

- Data import from other systems – trusted and pre-verified
- Manual data entry by community
 - Approx 30-40k users
 - Each entry should be verified

User roles in CroRIS

Superadmins
(system admins)



Module admins



Global user
support



< Global

Institutional >



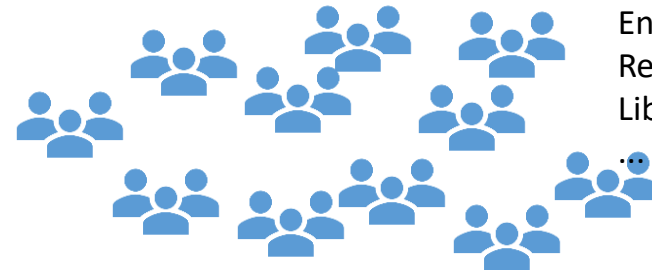
Management



CroRIS Coordinator



Data editors



End-users
Researchers
Librarians

CroRIS Coordinator

- Administrates institutional editors
 - Can be an editor as well
 - Is appointed by the head of an institution
 - Is administered by system administrator and central helpdesk
-
- CroRIS Coordinator should be well acquainted with research activities and data (e.g., vice dean for research or science)

CroRIS - institutional data editors

- Specialized for a specific module:
 - CROSB (publications)
 - Projects
 - Institutions
 - Researchers and staff
 - Equipment and services
 - ...
- In charge of editing the data related to their institution
- Helping the end-users and verifying their entries (data curation / verification)
- Supporting institutional end-users

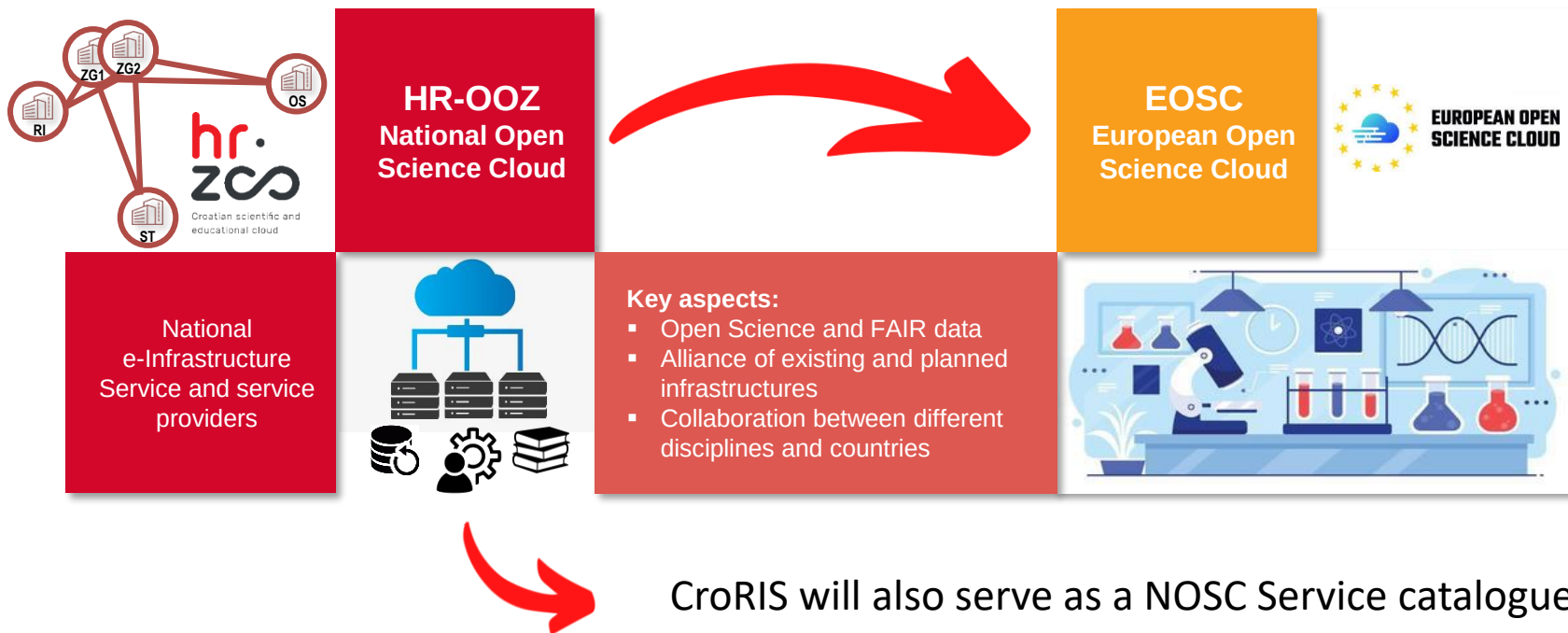


Openness

CroRIS and Open Science

- Most of the data will be publicly available (research institutions, researchers, projects, publications, patents, facilities, equipment, services, ...)
- CroRIS will:
 - enable the visibility and transparency of the research projects and results
 - link together the already publicly available data (publications and research data) with projects, researchers etc.
 - actively promote open science by “pushing” the idea of publishing full texts, research methods and data bound to projects, publications and patents to project leaders, publication authors etc.
- We will implement the connection to OpenAIRE
- The data will be available to third parties via generic programming interface as well

Croatian Open Science Cloud (HR-OOZ) Initiative





Operativni program
**KONKURENTNOST
I KOHEZIJA**

Projekt je sufinancirala Europska unija iz Europskog fonda za regionalni razvoj

Thank you

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