



Fundação para a Ciência e a Tecnologia

MINISTÉRIO DA EDUCAÇÃO E CIÊNCIA

*Eco-systems of research information
systems: a global perspective*

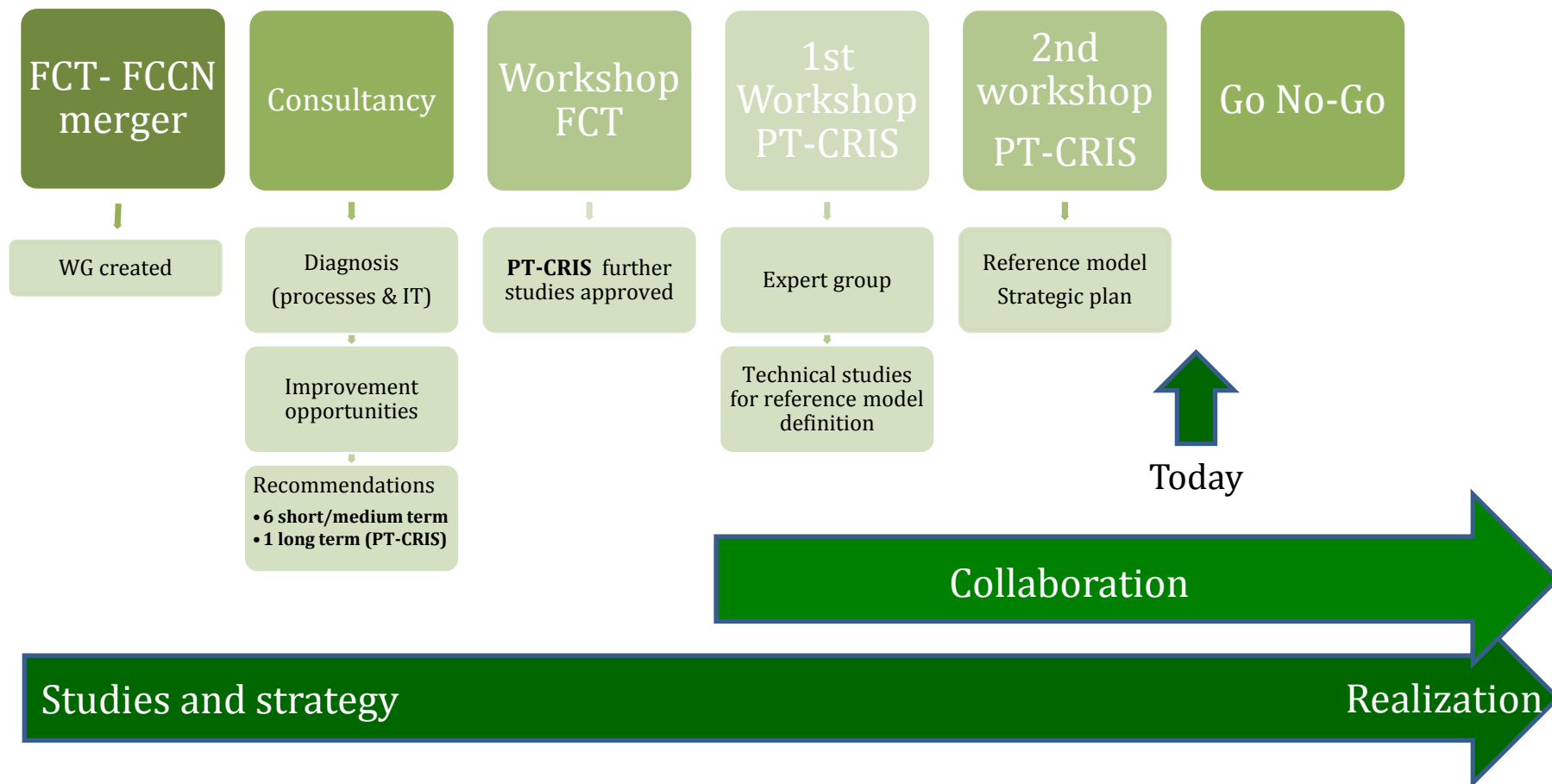
João Mendes Moreira



Agenda

- **Background**
- Survey
- Conclusions
- PT-CRIS

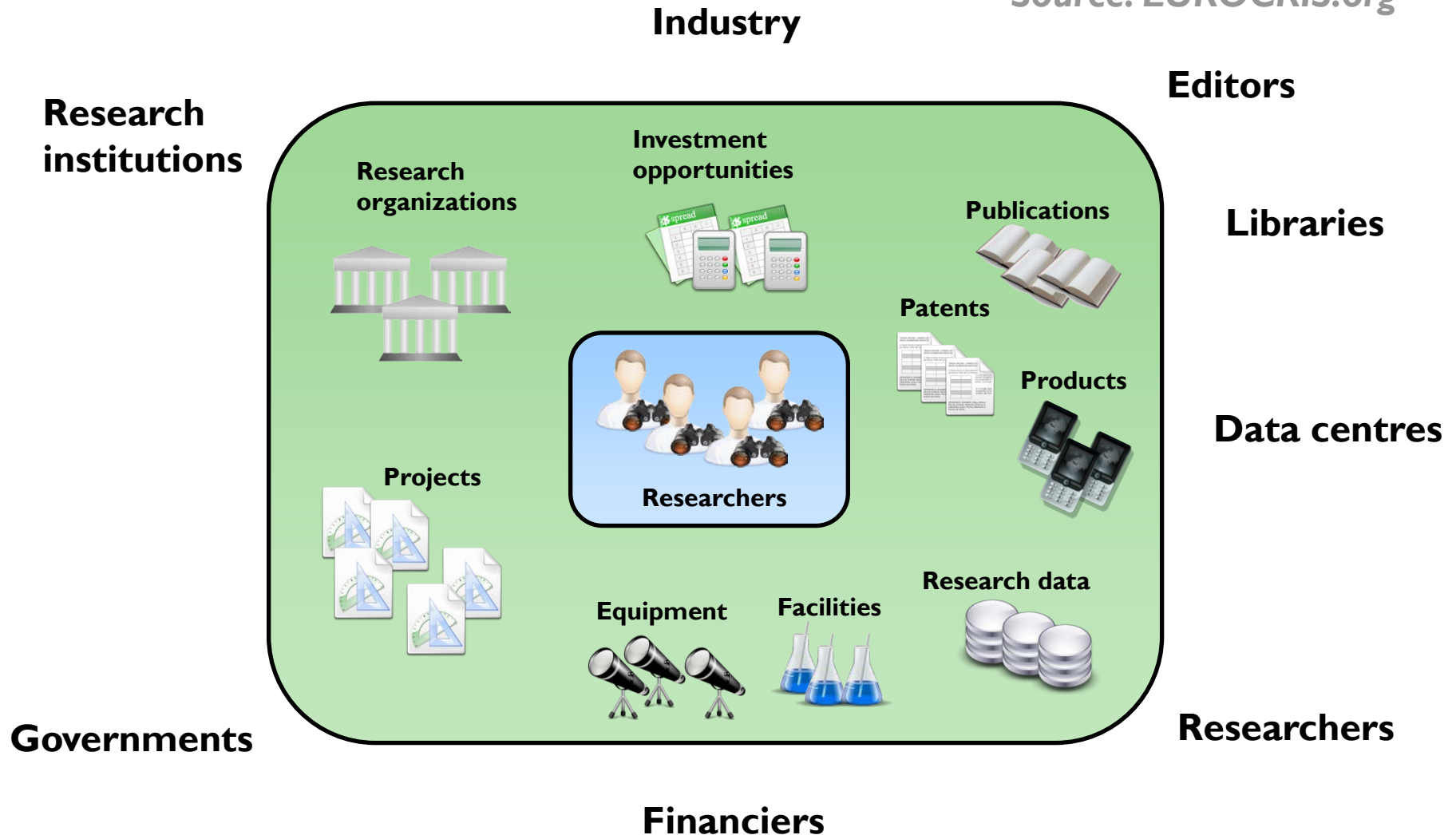
Background





The research information space

Source: *EUROCRIS.org*



Background - goals

- Reference Architecture
 - Components / modules to support
 - Interoperability (IRs, CRIS, Other scientific SI systems)
 - Norms and standards (data model, interfaces)
-

Background - 1st workshop deliverables

Deliverable	Responsável
D2.1 – Eco-systems	FCT
D2.2 – Academic expertise (CVs)	DeGóis
D2.3 – CRISs	UP
D2.4 – Outputs/Outcomes	SDUM / Authenticus
D2.5 – Guidelines and standards	DeGóis
D2.6 – Organizations management	DGEEC

Survey eco - design

- Institution profile
 - Services
 - Services dimension (national, federated, local)
 - Protocols and standards
 - Interoperability
 - Logical architecture
 - SWOT
-

Agenda

- Background
- **Survey**
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- PT-CRIS

Survey eco – institution profile

Country	TLD	
Suisse	CH	
Check Republic	CZ	
Portugal	PT	
Spain	ES	
Sweden	SE	
Slovak Republic	SK	
Netherlands	NL	
Brazil	BR	

Trends, not certainties!

Survey eco – institution profile

Organization Name	Organization type				
	Funding Agency	Research	Library	Govern.	Data Archive
Swiss National Science Foundation SNSF	X				
Office of the Government of the Czech Republic, Research and Development and Innovation Council				X	
Foundation for Science and Technology	X		X		
SPANISH FOUNDATION FOR SCIENCE AND TECHNOLOGY (FECYT)				X	
Swedish Research Council	X				
Slovak Centre of Scientific and Technical Information (SCSTI)			X	X	
Conselho Nacional de Desenvolvimento Científico e Tecnológico – CNPq	X				
Data Archiving and Networked Services – DANS		X			X
	4	1	2	3	1

Survey eco - Services

CRIS

Academic
expertise

Project
database

Outcomes /
outputs

Reserach
news

Organizations
database

Grant
management

Research
ethics

Scientific
equipment

Research
portal

Survey eco - Services

CRIS

Academic
expertise

Project
database

Outcomes /
outputs

Research
news

Organizations
database

Grant
management

Research
ethics

Scientific
equipment

Project call

Research
portal

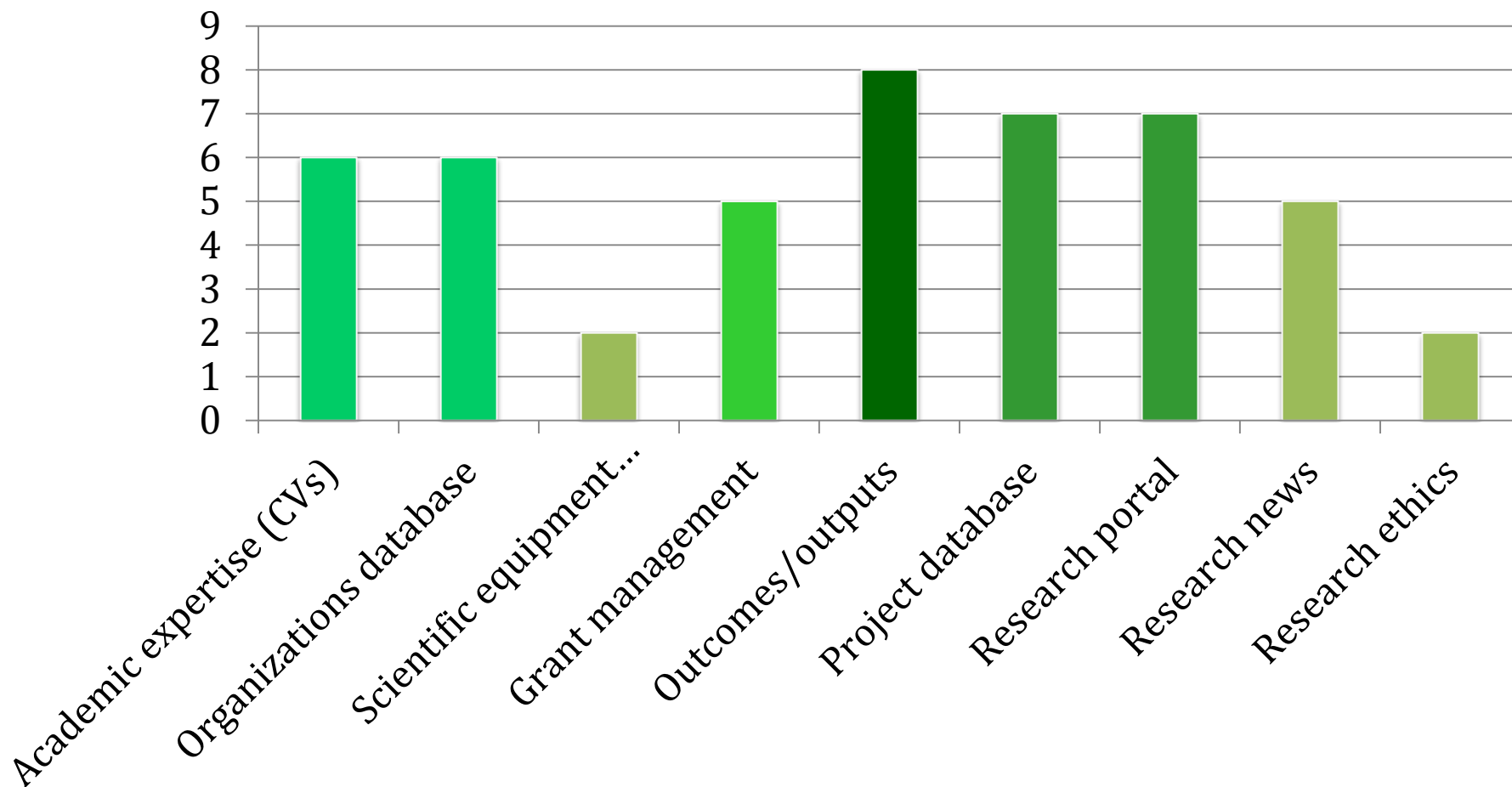
Statistics

Evaluation

Scientific
Journals

Research data

Survey eco - services



Survey eco - Software

Service	Custom vs Proprietary								
COUNTRY	CH	CZ	PT	ES	SE	SK	NL	BR	Total
Academic expertise (CVs)		-	C	C	C	P	C	C	C=5, P=1
Organizations database	C	P			C	P	C	C	C=4, P=2
Scientific equipment		-				P		C	C=1, P=1
Grant management	C	-	C		PC	P		C	C=4, P=2
Outcomes/outputs	C	P	C	C	C	P	C	C	C=6, P=2
Project database	C	P		C	P	P	C	C	C=4, P=2
Research portal	NA	P		C	PC	P	C	C	C=4, P=2
Research news		P		P	PC	P	C	C	C=3, P=3

Survey eco - Staff

Function	Number of staff involve in development									Number of staff involved in operations								
COUNTRY	CH	CZ	PT	ES	SE	SK	NL	BR	med	CH	CZ	PT	ES	SE	SK	NL	BR	med
Academic expertise (CVs)			2	4	1,2			4	3,0			2	6	?	4		3	3,5
Organizations database	NA	8			1,2			3	3,0	NA	3			?	4		3	3,0
Scientific equipment								5							4		3	3,5
Grant management	5		6		9			15	7,5	8		2		1			3	2,5
Outcomes/outputs	2	10	1	2	2,5			5	2,3	1	5	3	3	0,35	4		3	3,0
Project database	NA	8		3	0,7			4	3,5	NA	3		151	0,5	4		3	3,0
Research portal	NA	5		3	0,8			3	3,0	NA	3		3	?	6		1	3,0
Research news				6	2,3			3	3,0		4		6	2,3	3		1	3,0
Research ethics					0,1			3	1,6					0,5			1	0,8
Sub-Total	7	31	9	18	18	0	2,5	45	29,8	9	18	7	169	4,65	29	0,75		30,3

Survey eco - dimension

Service /data	Dimension																														
	National								Federated								Local (institutional)														
	CH	CZ	PT	ES	SE	SK	NL	BR	Total	CH	CZ	PT	ES	SE	SK	NL	BR	Total	CH	CZ	PT	ES	SE	SK	NL	BR	Total				
Academic expertise (CVs)			X	X	D	X	X	X	6									0		X	X	X	Y		X	X	6				
Organizations database		X			D	X	X		4									0	X							X	2				
Scientific equipment						X			1									0								X	1				
Grant management	X		X						2				D					1		X			X			X	3				
Outcomes /outputs	X	X	X	X	X	X	X		7			X	X	X				3		X	X	X	X		X	X	6				
Project database		X		X	X	X	X		5	X			X					2		X					X	X	3				
Research portal	X	X		X	D	X	X		6				X					1		X					X	X	3				
Research news		X		X	X	X	X		5									0		X					X	X	3				
other - Research data		X				X	X		3									0		X					X		2				
other - Statistics survey of research potential		X				X	X		3									0		X					X		2				
other - Evaluation of quality of science		X				X	X		3									0		X					X		2				
									45										7												33

Survey eco - Protocols & Standards

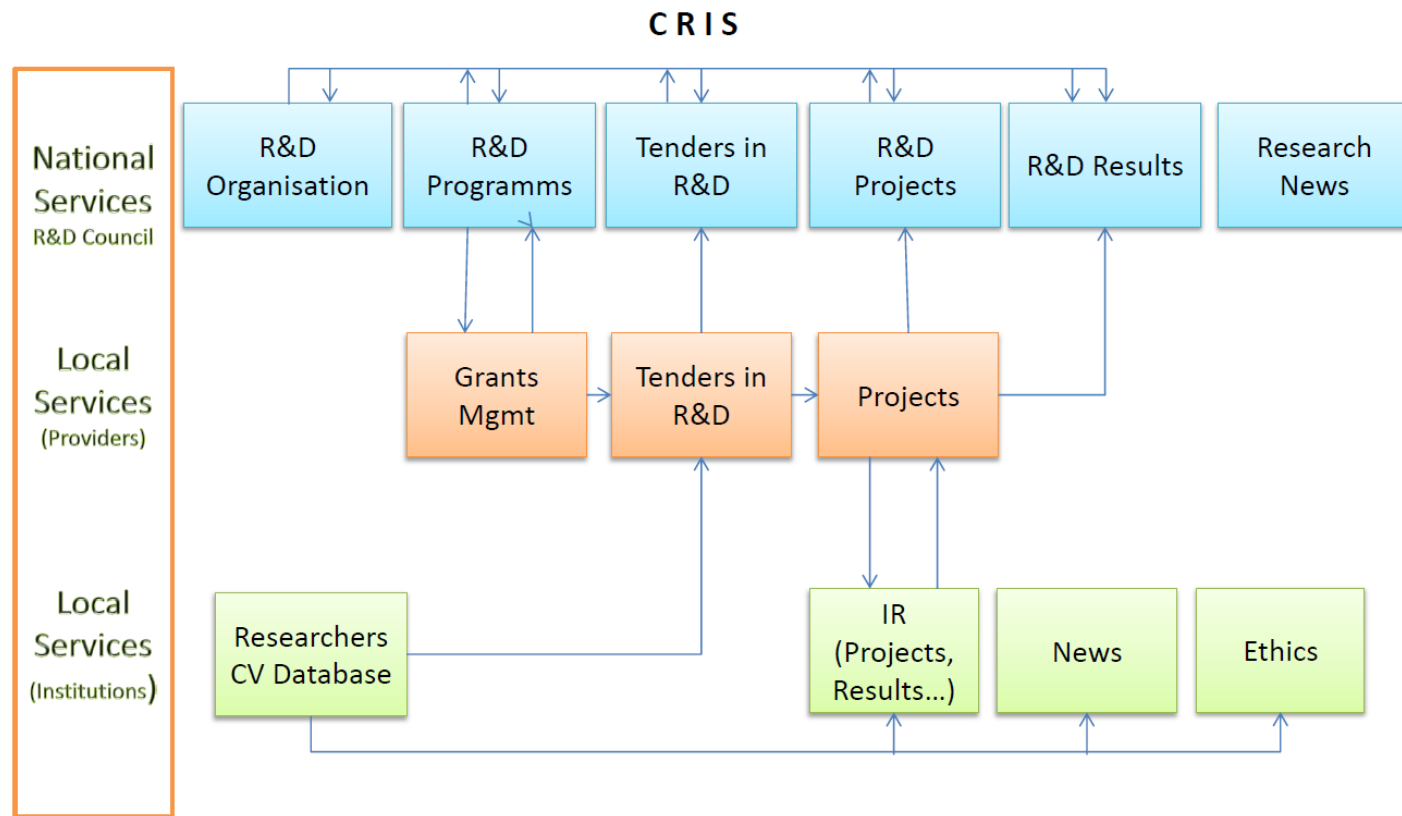
- 5 reported some use of CERIF
- 3 reported some proprietary protocols
 - ES – CVN – Normalized CV
 - NL – Proprietary identifiers, vocabulary
 - LATTES-XML

Survey eco - Interoperability

Data providers									
Data collectors	Service	AE (CVs)	Org.DB	Grant management	Outcomes /outputs	Project DB	External Sources	Scientific equip.	Total
	Academic expertise (CVs)	3	3	3	5	2	4	1	21
	Organizations database	1	1		2	2	2	1	9
	Grant management	3	3	1	1	1			9
	Outcomes /outputs	2	3		3	3	3		14
	Project database	2	4	1	2	2	2	1	14
	External Sources		1		1				2
	Scientific equipment		2					1	3
	Research portal	1	3	3	3	2	2		14
	Research news		1		1	1			3
	Research ethics								0
	Other - project calls					1			1
	other - Statistics survey of research potencial		2	1	1		1		5
	other - Qvaluation of quality of science		1		1				2
	Total		12	24	9	20	14	14	4

Survey eco – Architecture - SE

Digital ecosystem for research information - Czech Republic

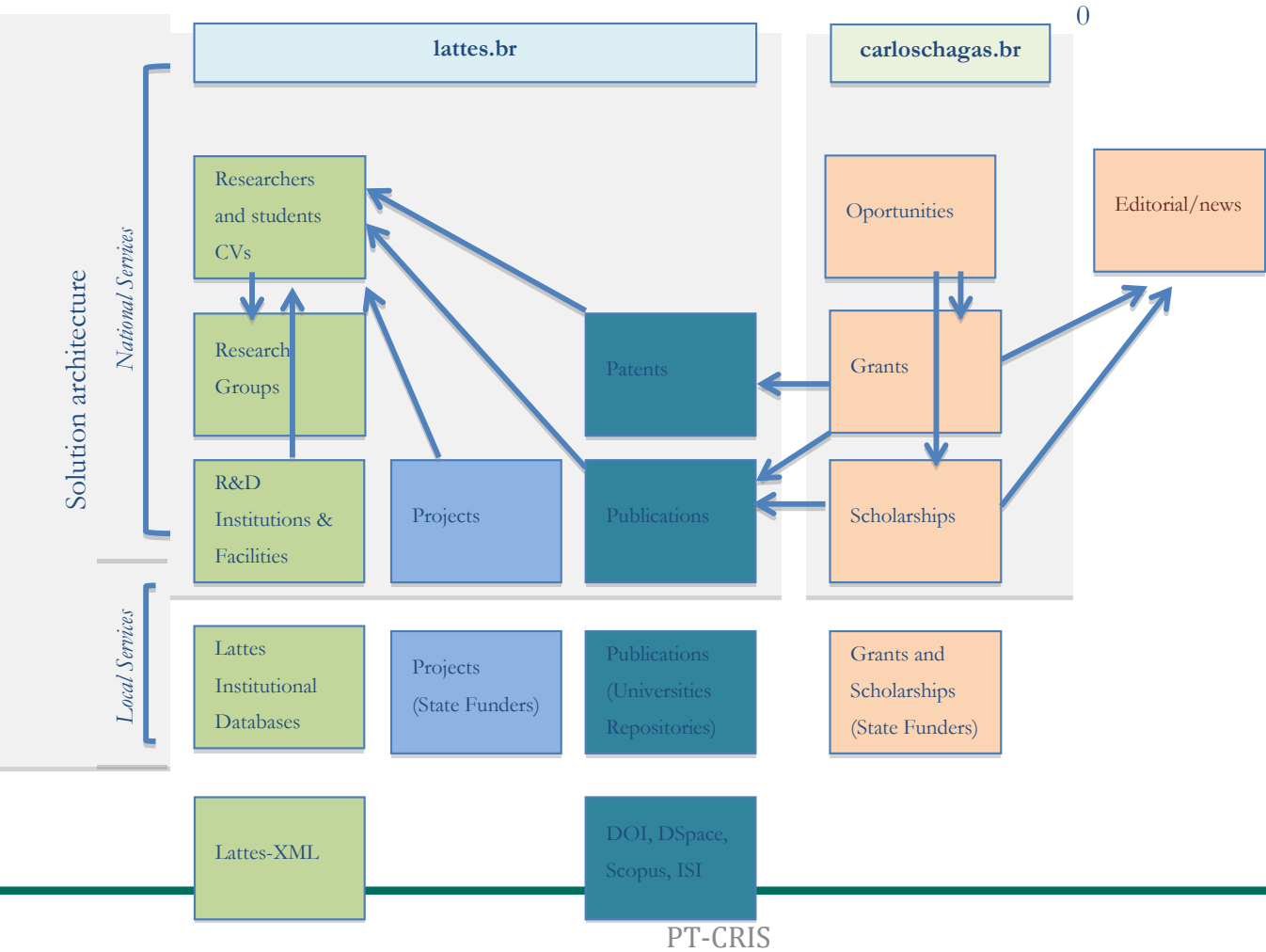


Survey eco – Architecture - ES

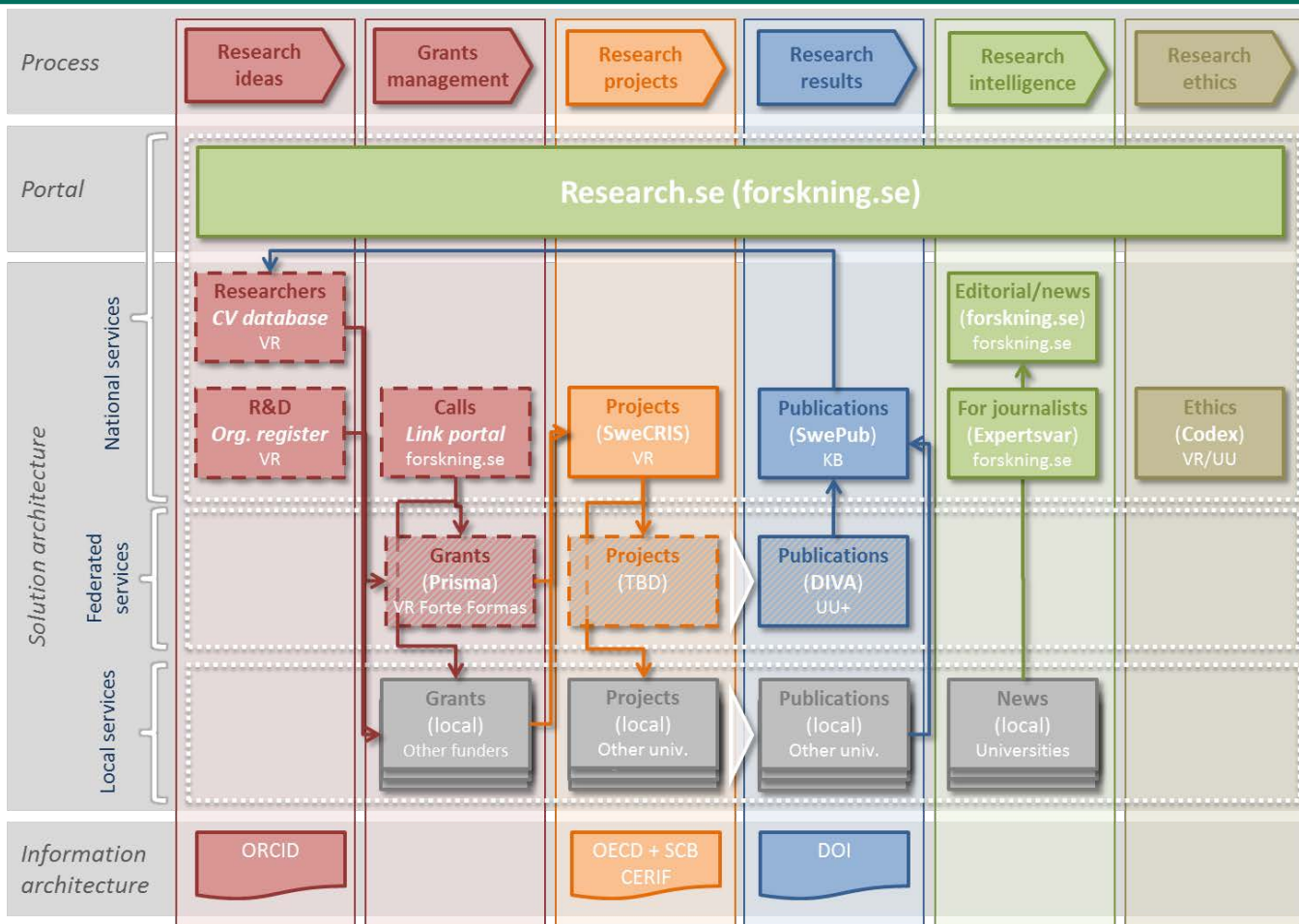
	Researchers	Grants management	Research projects	Research results	Research results	Research news	Researchs ethics	Others
National services	CVN		PAID	RECOLECTA	ICONO	SINC		RECYT
Federated services	↑			↑		↑		↑
Local services	SIC			Institutional Repository		Universities and Research Organizations		Spanish Scientific Journals
Information standards	CVN PDF XML CERIF		Oracle Discoverer/S QL	OAI-PMH DRIVER OPEN AIRE D-NET Dublin Core	CSV TXT Google API	Ez PUBLISH		OAI-PMH OJS

Survey – Architecture - BR

Function Stakeholders Research projects Research results Grants management Research portal



Survey – Architecture - SE



Survey eco - Examples of services - SK

The screenshot displays the SK CRIS portal interface. At the top, there are links for 'Create new account / password reset', 'Sign In', and 'SKCRIS portal'. The main navigation bar includes 'Registry of researchers', 'Registry of organizations', 'Registry of projects', and 'Results R&D'. The left sidebar contains logos for the Operational Program VYSKUM a VÝVOJ, the European Union, and the Scientific and Technological Center of the Slovak Republic, along with a 'Homepage' button. The main content area is titled 'SK CRIS > Register of results' and features a search section with the following fields and options:

- Search: [Search bar]
- Result name of RaD: [atom]
- Description / keywords: [Search bar]
- Result type of RaD: ☒ patents, ☒ publication, ☒ citation, ☒ product, ☒ innovation
- Date: [Search bar]

At the bottom, there is a message 'Ďakujeme Prevádzkovateľ' and a statistics box stating 'At the date 22. 10. 2013 is registered 1.358 organisations'.



The Research and Development and Innovation Information System of the Czech Republic
research and development and innovation in the Czech Republic with public support

česky

english

R&D Activities

State Funding Providers

R&D Programmes

Organizations Active in R&D

Tenders in R&D

R&D Projects

Institutional Research Plans

Results of R&D

Listing of state funding providers

26 funding providers found

Search again Next » Last »

1.	AVO Academy of Sciences of the Czech Republic
2.	BIS Czech Security Information Service
3.	CBU Czech Mining Office Board
4.	CUZ Czech Office for Surveying, Mapping and Cadastre
5.	GAO Czech Science Foundation
6.	MDS Ministry of Transport and Telecommunication
7.	MD0 Ministry of Transport
8.	MH0 Ministry of Economy
9.	MI0 Ministry of Informatics
10.	MK0 Ministry of Culture
11.	MMR Ministry for Regional Development
12.	MO0 Ministry of Defence

Survey eco - SWOT

Country	TLD	Strengths	Weaknesses	Opportunities	Threats
Check Republic	CZ	A stable national CRIS with a long tradition . It enables transparency in the research funding domain.	Certain types of entities missing , most notably Facility, Equipment and Research Dataset	Quality (Czech) researcher identification but not shown on the portal for personal data privacy reasons Linked Open Data exposure CERIF compatibility	
Slovak Republic	SK	• Legislative background for national R&D portal and information system providing 10 years of experience of SCSTI with providing the similar system • Established system for R&D organization data identification (system of evaluation as condition for use of public resources) • Implementation of EU standards (CERIF)	• Absence of institutional CRIS systems in Slovakia • Quality and complexity of received data is not lawfully guaranteed	• Improve the cooperation of Slovak R&D stakeholders in the area of R&D data exchange and systems integration • Improve the legislation for reach more complex and more valid data	• Ensure continual and sufficient funding of SK CRIS
Portugal	PT	• Outputs and outcomes module • Team potential and completeness (expertise , networking (COAR, euroCRIS, OCDE, etc))	• Underdeveloped or non-existent modules • Non-CERIF	• Best practices • Efficiency • Transparency • Better service	• Funding • Political instability

Illustrative

Survey eco – Conclusions

- Survey
 - survey response rate was near 50%
 - Some questions were complex to answer
 - One should read the results in terms of trends
- Responders were mostly Funding agency or governmental institutions

Survey eco – Conclusions

- Services

- **New services** emerged:

- Some related to outcomes/outputs **research data, scientific journals**
 - Some related to grants and projects: **project call**
 - Some related to **statistics** and **evaluation**

- Most **well established** services are:

- Outcomes/outputs (8), project database , research portal (7), academic expertise and org. database (6)

Survey eco - Conclusions

- Software - most of the systems are custom developments
 - Staff
 - Staff is distributed equally between operations and development
 - All services, operation sum of medians was dev (28), ops (32)
 - Services national (45) and/or local (33), not federated (7)
 - Most of the responders indicated some form of CERIF use
 - Interoperability
 - The top data collectors are CVs, research portal, outcomes / outputs and project database
 - The top data providers are Organizations database, outcomes/outputs
-

Survey Eco - Highlights

- Suisse – how to set up a strategical vision

<http://www.crus.ch/dms.php?id=28920>

- Slovakia – Components of a national CRIS
- Danica Zendulkova: State-operated CRIS systems in the EU. CVTI SR: Bratislava, Slovak Republic. 2011. ISBN 978-80-89354-04-7

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- PT-CRIS

Conclusions

- The state of the art reports were very important to:
 - Learn the best practices
 - Get decision makers confident
- euroCRIS played an important role in this process
 - Guidance on the survey
 - Facilitator for identifying respondents

euroCRIS wish list

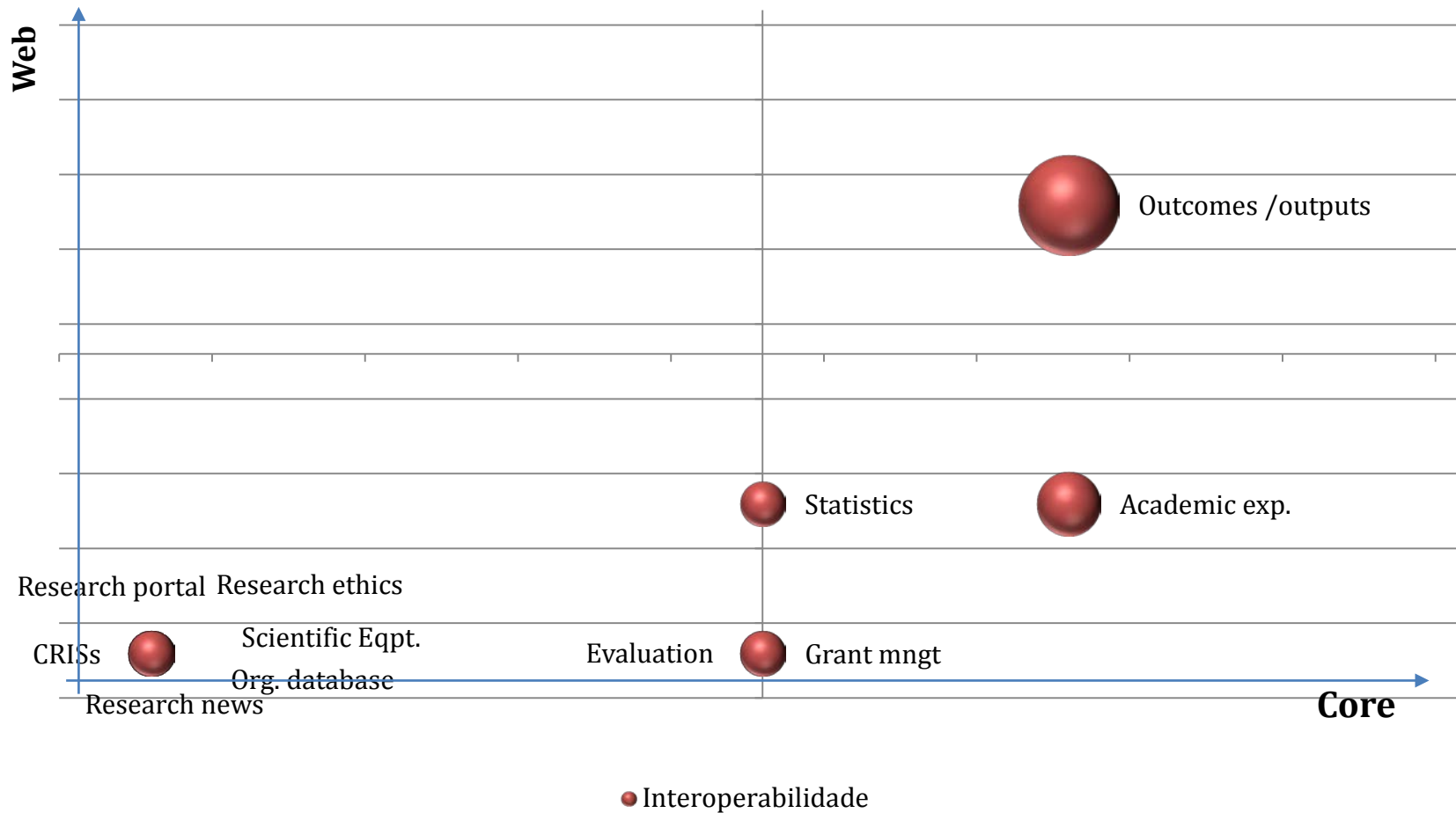
- Architecture reference model
- Modules specs / requirements (ex: RFPs)
- One layer up: from tables to objects

Agenda

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 - **PT-CRIS**
 - **PT systems maturity**
 - **Critical analysis**
 - **Strategy**
 - **Next Steps**
-

Illustrative

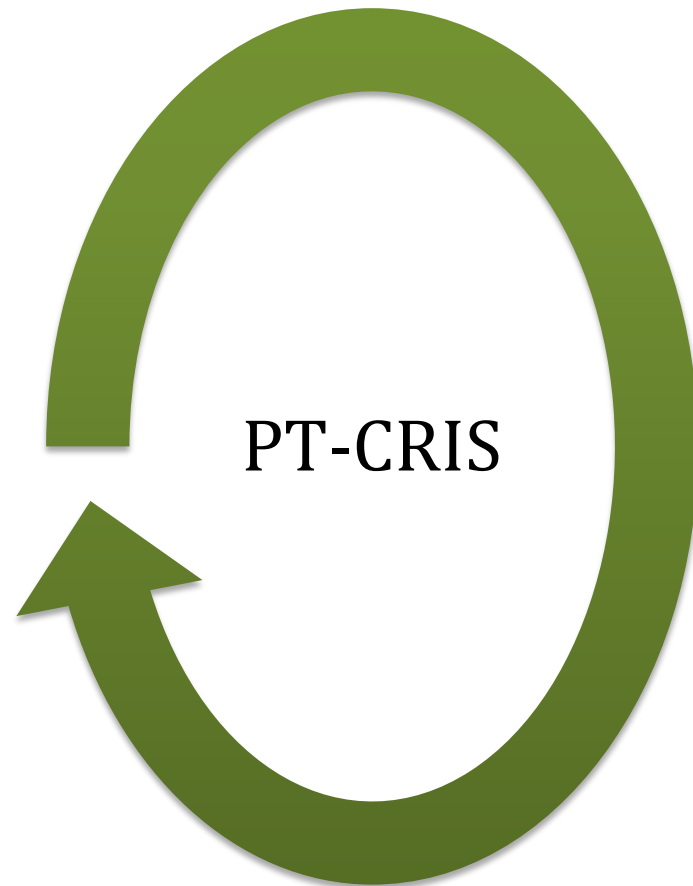
Maturity



Survey Eco – Critical analysis (PT)

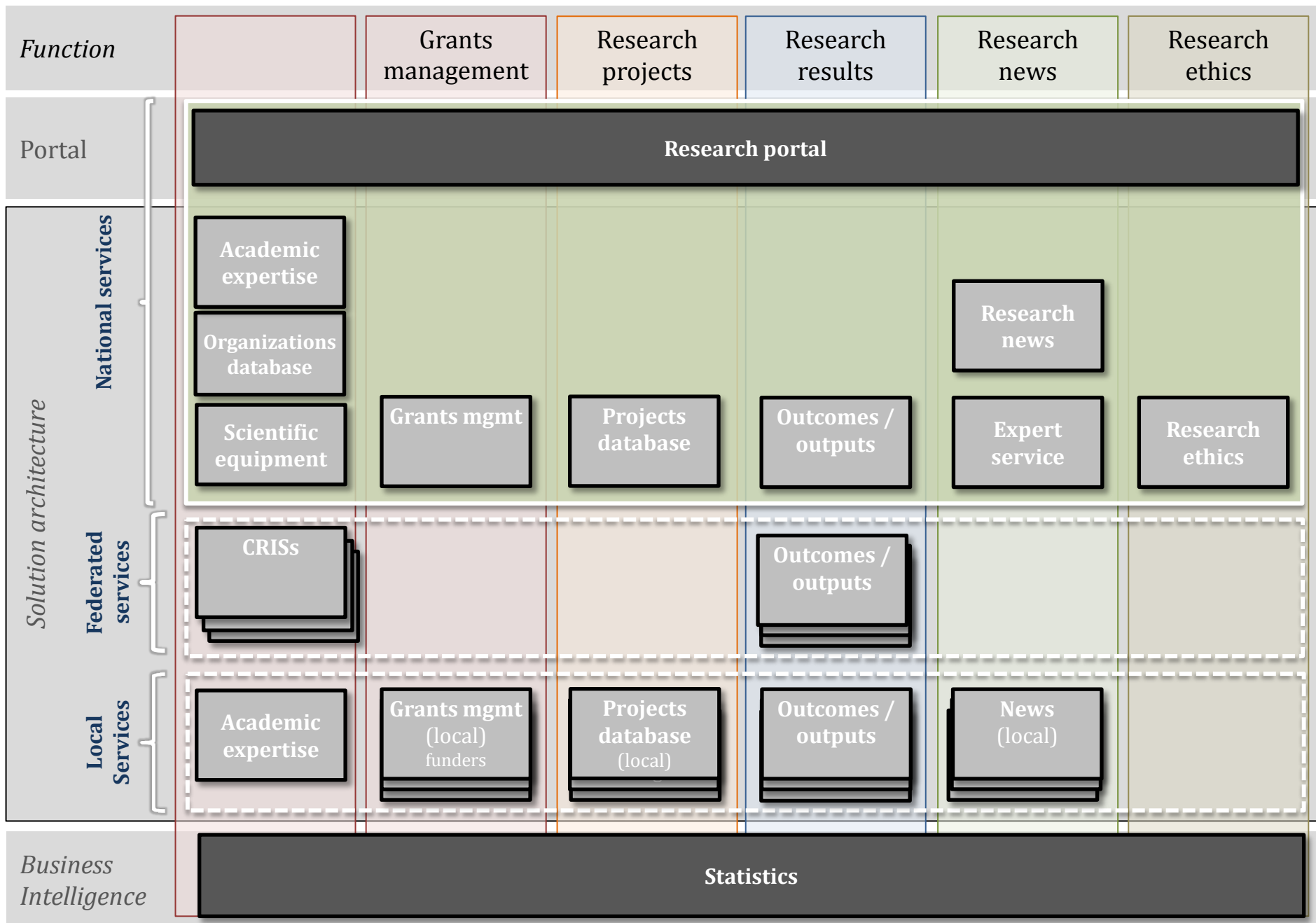
- Portugal has a long way to go:
 - Authoritative organizations database
 - Call, grants and project services are obsolete
 - Research portal to be considered
 - Evaluation and stats to be further analyzed
 - CRISs needed
 - Swedish logical architecture seems to be the most comprehensive
 - CERIF seems to be imperative
-

Strategy



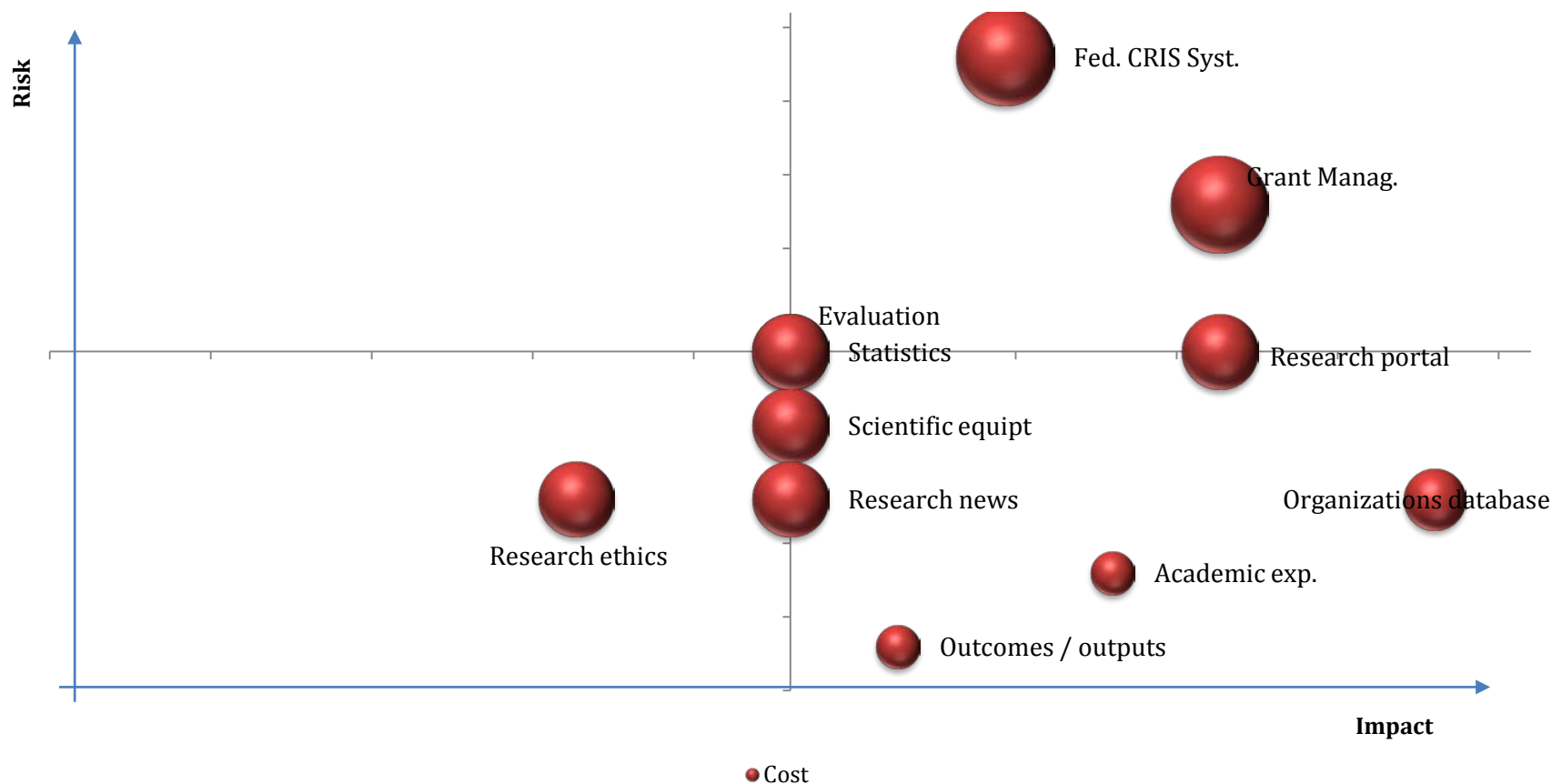
- Vision and mission
- Benefits
- Stakeholders
- Fields of activity
- Principles
- Service architecture
- Organization of the program
- Operating model

Digital ecosystem for research information



Illustrative

Strategy - Priorities



Background



Cooperation is power!

FCT

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EXCELLENCE | KNOWLEDGE | IMPACT

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