TECHNOLOGY CENTRE CAS

Research Infrastructures, an international comparison

Vlastimil Růžička

November 2, 2017

TECHNOLOGY CENTRE CAS

Projects and portal

- **InRoad** project
  - a Horizon 2020 project going *towards better synchronisation of priority settings and evaluation mechanisms for research infrastructures beyond national relevance*.
  - 1st available document „Funding of RI, D 4.1 Report on Literature Review" in its part III. not well prepared, information not systematically and consistently presented
  - http://inroad.eu/

- **ResInfra** project
  - Facilitating macro-regional scope and link up to socio-economic actors of Research Infrastructure in the Danube Region
  - http://www.interreg-danube.eu/approved-projects/resinfra-dr/partners

- **MERIL** (Mapping of the EURpean Research Infrastructure Landscape) portal
  - provides access to a database that stores information about openly accessible research infrastructures (RIs) in EURpe, across all scientific domains, including the social sciences and humanities.
  - currently MERIL has **~900** identified RIs, and **~600** of them have completed profile pages and are visible on the public portal
  - https://portal.meril.eu/meril/static/static_about

TECHNOLOGY CENTRE CAS

ESFRI

- ***Strategy Report on Research Infrastructures, Roadmap 2016***, published 2016, John Womersley the ESFRI chair
- ESFRI roadmap lists 21 Projects and 29 Landmarks
- **ESFRI Projects** have been selected for scientific excellence and maturity and are included in the Roadmap in order to underline their strategic importance for the European Research Infrastructure system and support their timely implementation. The ESFRI Projects can be at different stages of their preparation according to the date of inclusion in the ESFRI Roadmap.
- **ESFRI Landmarks** are the RIs that were implemented or started implementation under the ESFRI Roadmap and are now established as major elements of competitiveness of the European Research Area. The ESFRI Landmarks need continuous support for successful completion, operation and upgrade in line with the optimal management and maximum return on investment.
- total budget absorbed by all European RIs is in the range of 10 billion EUR per year

TECHNOLOGY CENTRE CAS

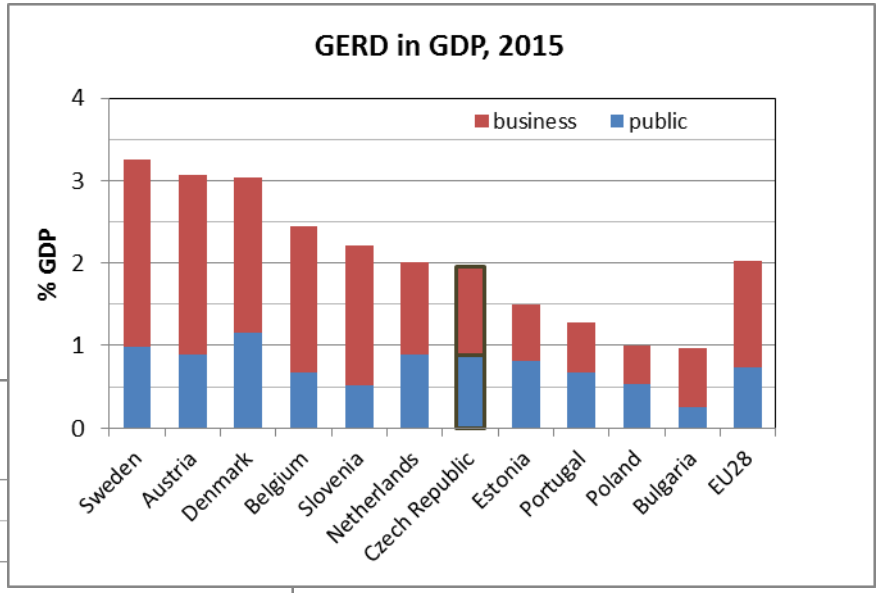
List of countries

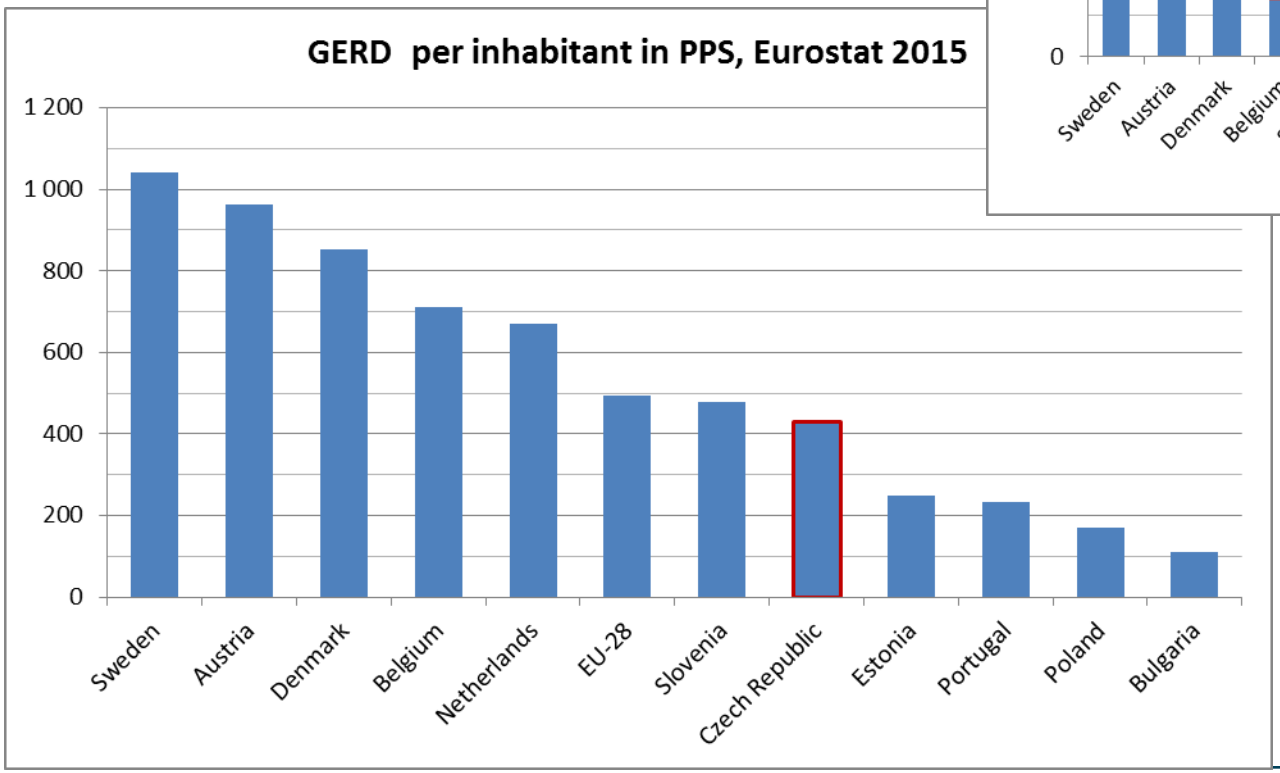
Country	NRRI publishing date	NRRI language
Austria	Feb-2014	German
Belgium	no NRRI, federal government and Flemish government split responsibilities	
Bulgaria	Jun-2017	English
Czech Republic	Oct-2015	Czech/English
Denmark	2015	English
Estonia	Sep-2014	Estonian and English
Netherlands	Dec-2016	English
Poland	Aug-2014	Polish
Portugal	Jul-2014	English
Slovenia	2016	English
Sweden	2012,2014,2016	English

Bulgaria:
- most recent NRRI
- is not member of OECD

TECHNOLOGY CENTRE CAS

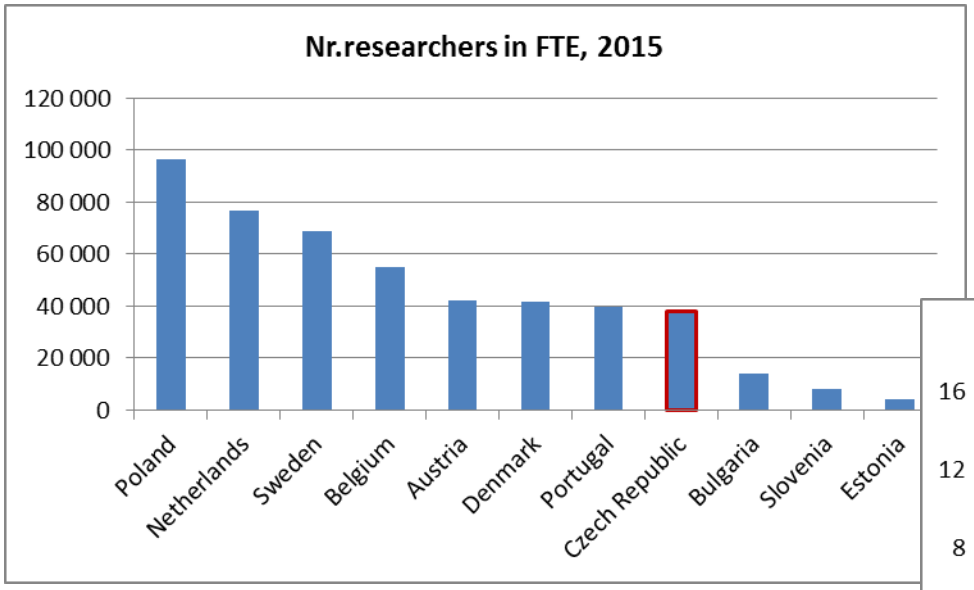
GERD in 2015

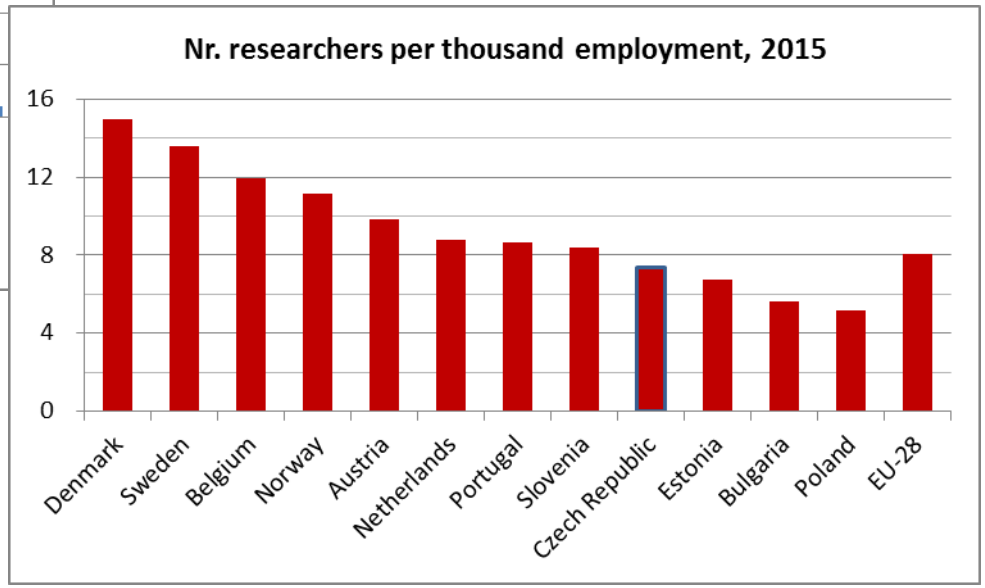




Source: Eurostat, Research and development expenditure

Number of researchers, 2015





Source: OECD, MSTI

TECHNOLOGY CENTRE CAS

Number of Research Infrastructures and International Research Organizations on NRRI

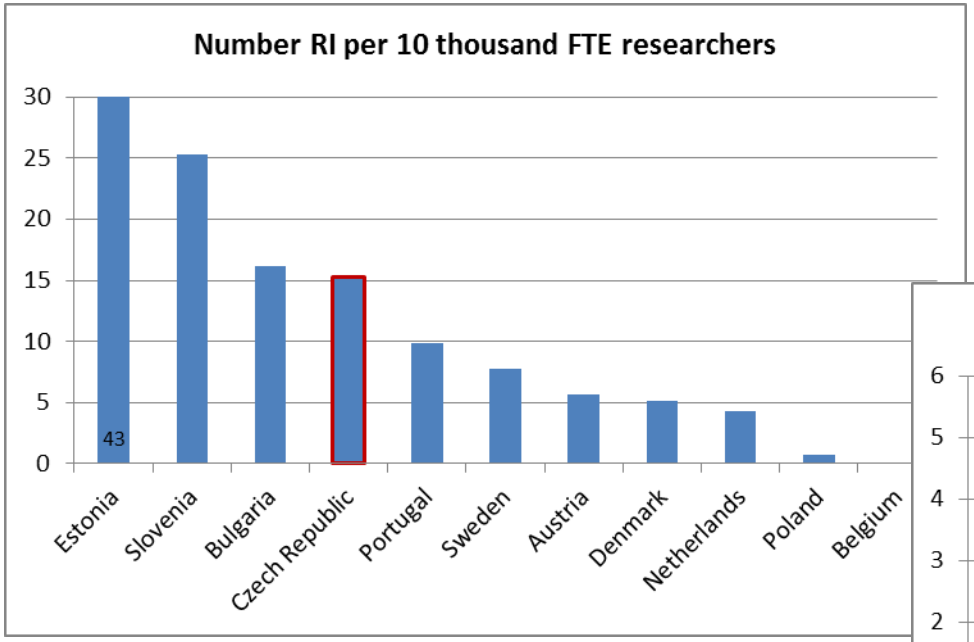
Country	RI	ESFRI	IRO [1]
Austria	22	11	5
Belgium	n.a.	n.a.	2
Bulgaria	23	10	3
Czech Republic	58	24	8
Denmark	22	6	5
Estonia	18	6	2
Netherlands	33	25	6 [2]
Poland	6 (12) [3]	6	4
Portugal	40	26	4
Slovenia	20	18	1
Sweden	51	21	4

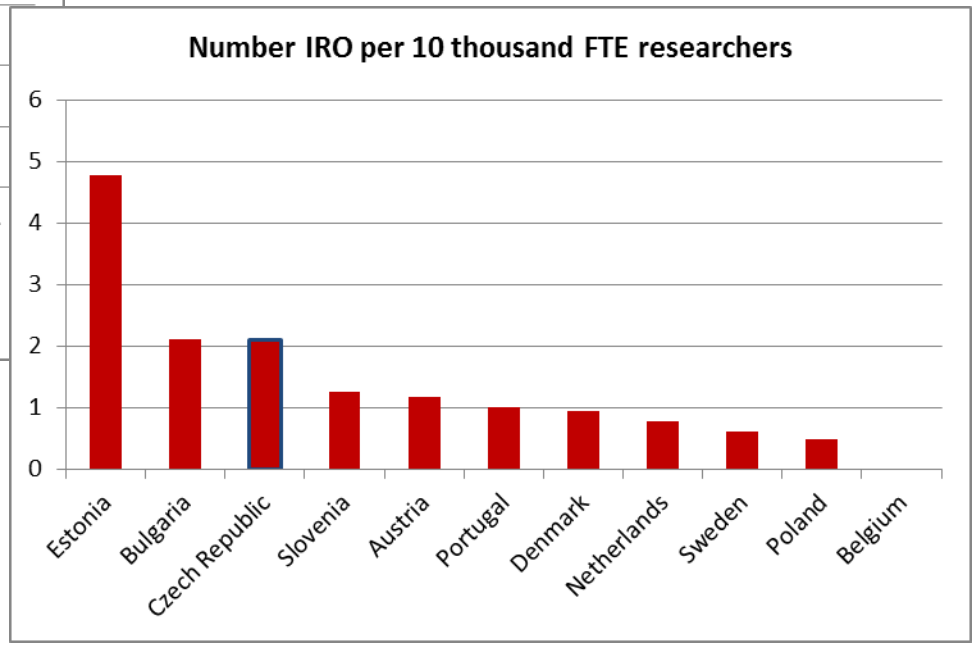
[1] ITER included among IRO; some NRRI don´t include all IRO; some countries include ESRF, ILL

[2] Netherlands: NTU/INL[The Dutch Language Union] listed among IRO

[3] Poland plans to support participation in 12 internatl.RI over 2016-22

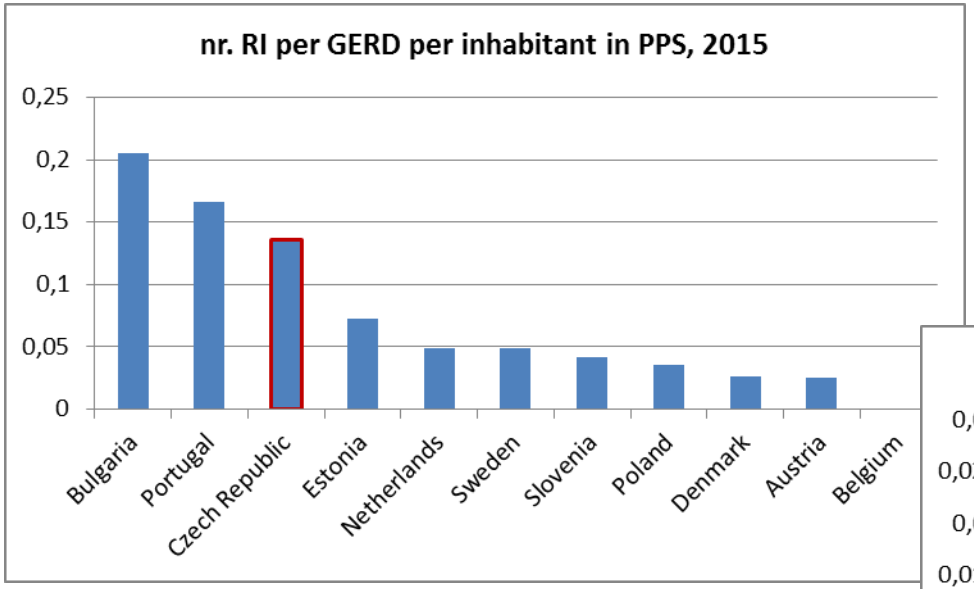
Number RI/IRO per nr. researchers

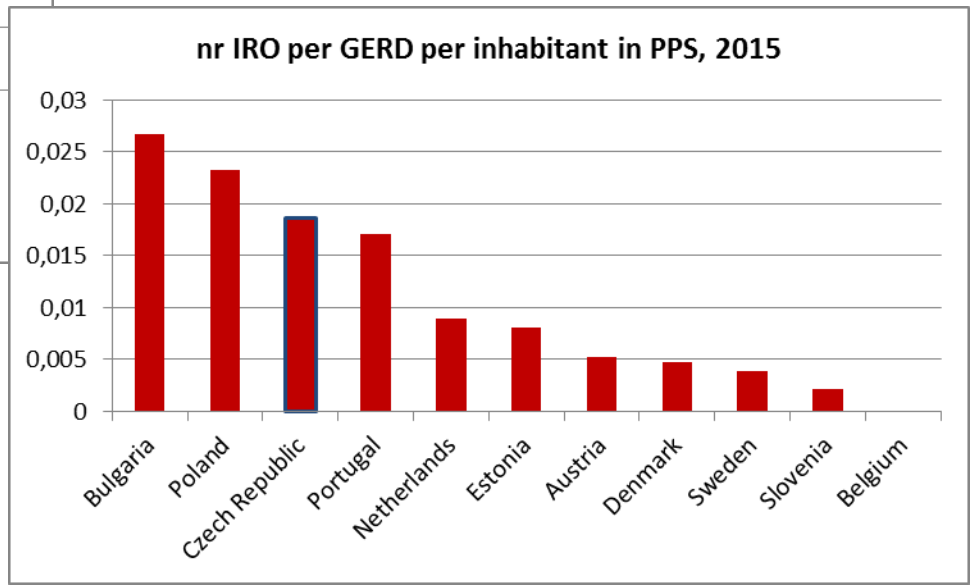




For Belgium data on nr. RI/IRO impossible to obtain; no NRRI

Number RI/IRO per GERD per inhabitant in PPS





For Belgium data on nr. RI/IRO impossible to obtain; no NRRI

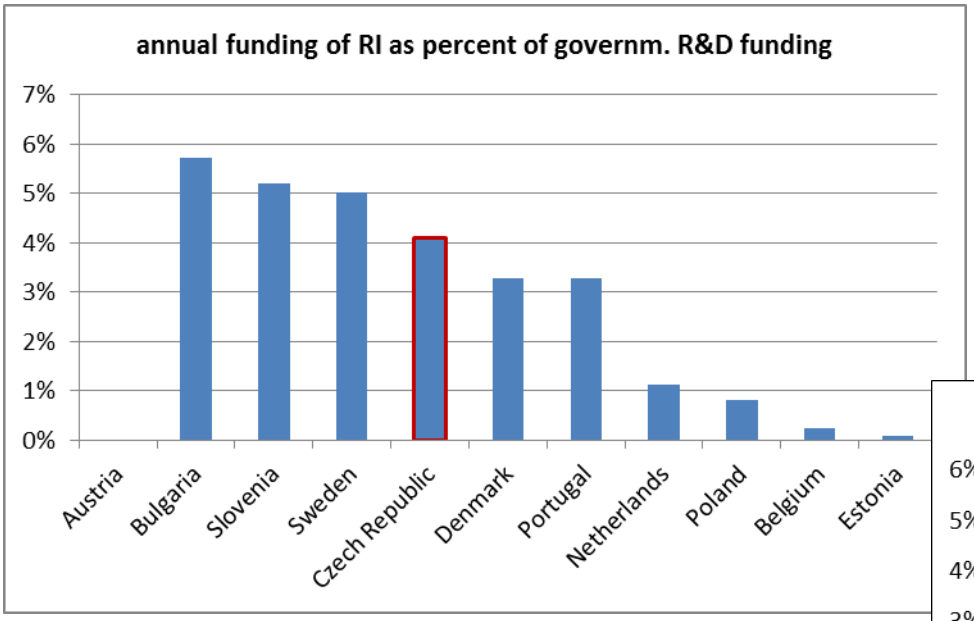
TECHNOLOGY CENTRE CAS

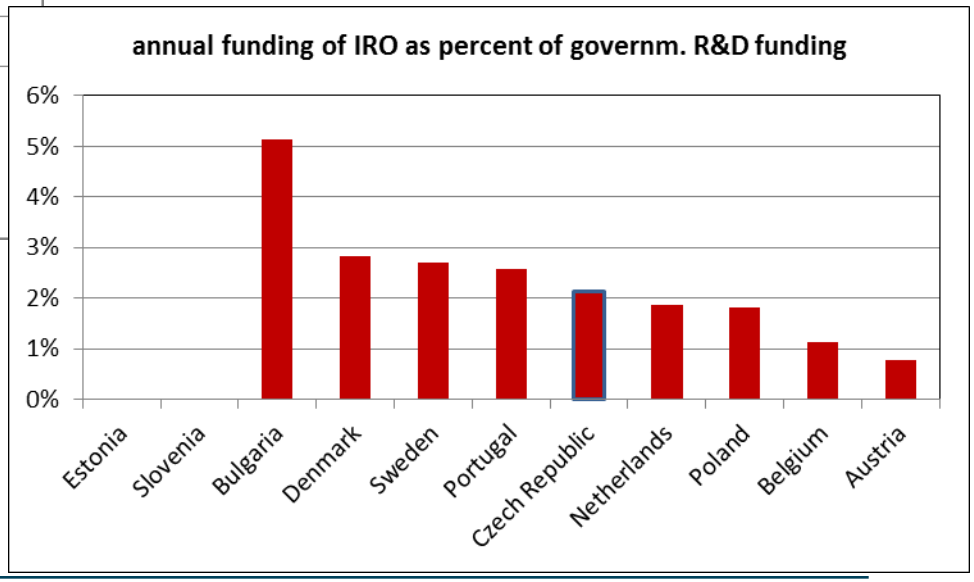
Funding of RI and IRO

Country	funding body	governm. funding for R&D	funding for RI	funding for IRO	year	funding for RI	funding for IRO
		in mil. EUR					
Austria	Federal Ministry for Science, Research and Economy (BMWFW)	3720	n.a.	29	2016	n.a.	0.8%
Belgium	Belgian federal government and Flemish government	2790	6.5	31.2	2016	0.2%	1.1%
Bulgaria	Ministry of Education and Science	113	19	5.8	2016	5.7%	5.1%
Czech Republic	Ministry of Education, Youth and Sports	1374	56	29	2016	4.1%	2.1%
Denmark	Ministry for Higher Education and Science	2820	92.7	80	2016	3.3%	2.8%
Estonia	Ministry of Education and Research	844	4.4	n.a.	2015	0.1%	n.a.
Netherlands	Ministry of Education, Science and Culture	4881	55	91	2015	1.1%	1.9%
Poland	Ministry of Science and Higher Education	2299	18.4	42	2016	0.8%	1.8%
Portugal	Portuguese National Funding Agency for Science, Research and Technology	1163	38	30	2017	3.3%	2.6%
Slovenia	Ministry of Education, Science and Sport	262.67	13.65	n.a.	2015	5.2%	n.a.
Sweden	Swedish Research Council, and Swedish universities and foundatioms	3825	191	103	2016	5.0%	2.7%

- Austria:
  - some RIs supported by Austrian Universities within the performance agreement
  - Austria is not yet part of all 19 RIs listed as of central importance for Austrian research
- Belgium/Flanders: expenses for RI = for participation in ESFRI; 2 IRO: CERN, ESO
- Bulgaria: 66 % expenses for RI from ESIF
- Czech Republic: **expenses for RI from the program "Large RI" only**
- Denmark: funding for IRO includes CERN,ESO,ESA,EMBL and ITER; and ESRF,XFEL,E-ELT,ILL and ESS
- Estonia: 85 % expenses for RI from ESIF
- Sweden:
  - only expenses for RI by SE Res. Council
  - funding of IRO includes ESA only

Annual funding of RI/IRO as percent of governmental R&D funding





RI: Austria - data not available

IRO: Estonia, Slovenia - data not available
Sweden: funding of IRO includes ESA only, other contributions impossible to obtain

TECHNOLOGY CENTRE CAS

Conclusions

- Formal structure, content, year of publication, of NRRI differ. Many follow the ESFRI recommendation (BG,CZ,DK,NL,PT,*SE ?*)
- Number of RIs per nr. researchers or per R&D expenses differ. In the selected group of countries these values are higher in EU-13 member states. A similar conclusion holds for IROs.
- Ministry of Education, Science, and similar are funding bodies for RIs and IRO. In Sweden Res. Council is the main but not the only one funding body. In Portugal and in Austria regions also support RI.
- New member states cover the investment cost of new RIs also and often mainly from ESIF
- Operational (and in some countries also investment) expenses for RIs range from 1 % to 6 % of the government expenses for R&D. The same is true for membership fee in IRO.

TECHNOLOGY CENTRE CAS

Notes

- Preparation of this presentation would not be possible without contributions from several persons from funding agencies and similar bodies who provided information that was not readily available
- Data and statistics, in particular on funding, were often difficult to compare as in some countries funding from a “major” agency is supplemented by other bodies, often regions, or by private funding

TECHNOLOGY CENTRE CAS

Thank you for your attention

ruzickav@tc.cz