

Estonian research infrastructure policy

Toivo Rääim

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Estonian R&D and innovation strategy

- **2007-2013**

- To ensure a sufficient number of people and competitive infrastructure
- In order to carry out state-of-the-art research and participate in International cooperation, competitive R&D infrastructure is indispensable.

- **2014-2014**

- Ensure **systematic development of infrastructure**, incl. digital infrastructure. Plan investments in research infrastructure of national importance on the basis of a regularly **updated roadmap**, taking into account the quality conditions established in links with international infrastructures.
- Ensure **access** of Estonian research institutions and enterprises **to the international research infrastructure**; participate through the roadmap of the European Strategy Forum on Research Infrastructures (**ESFRI**) in the establishment of those research infrastructures that are most important for Estonia.

Balance of policy elements (I)

- **What is a right balance for R&D policy elements?**
- For a short period you may survive even omitting some important elements!
 - In 1990 –ies in Estonia several R&D policy elements were missing or inadequate
- **First switch on the missing elements (!)**
- Most importantly the growth of R&D expenses in Estonia is described by switching on (and absorbed by):
 - About 2000: major growth in enterprise R&D support
 - 2006 onwards: infrastructure reconstruction
 - 2008: major growth in human factor support
 - ~2010: *bigger attention in international activities*

Balance of policy elements (II)

- After switching on the necessary elements... **What is a right balance for R&D policy elements?**
 - **Does it exist a golden rule** for the sustainable proportions of infrastructure investments, human capital building, etc?
 - When is the investment gap – past deficiency – filled enough?
- If there is no golden rule:
 - dont lock ratios, just **wait for the impact and assess the effectiveness** – feedback approach
 - Proper indicators needed
 - We do not address any distinct past deficiencies – but at starting period we invest more heavily in infrastructure compared to expected sustainable proportion

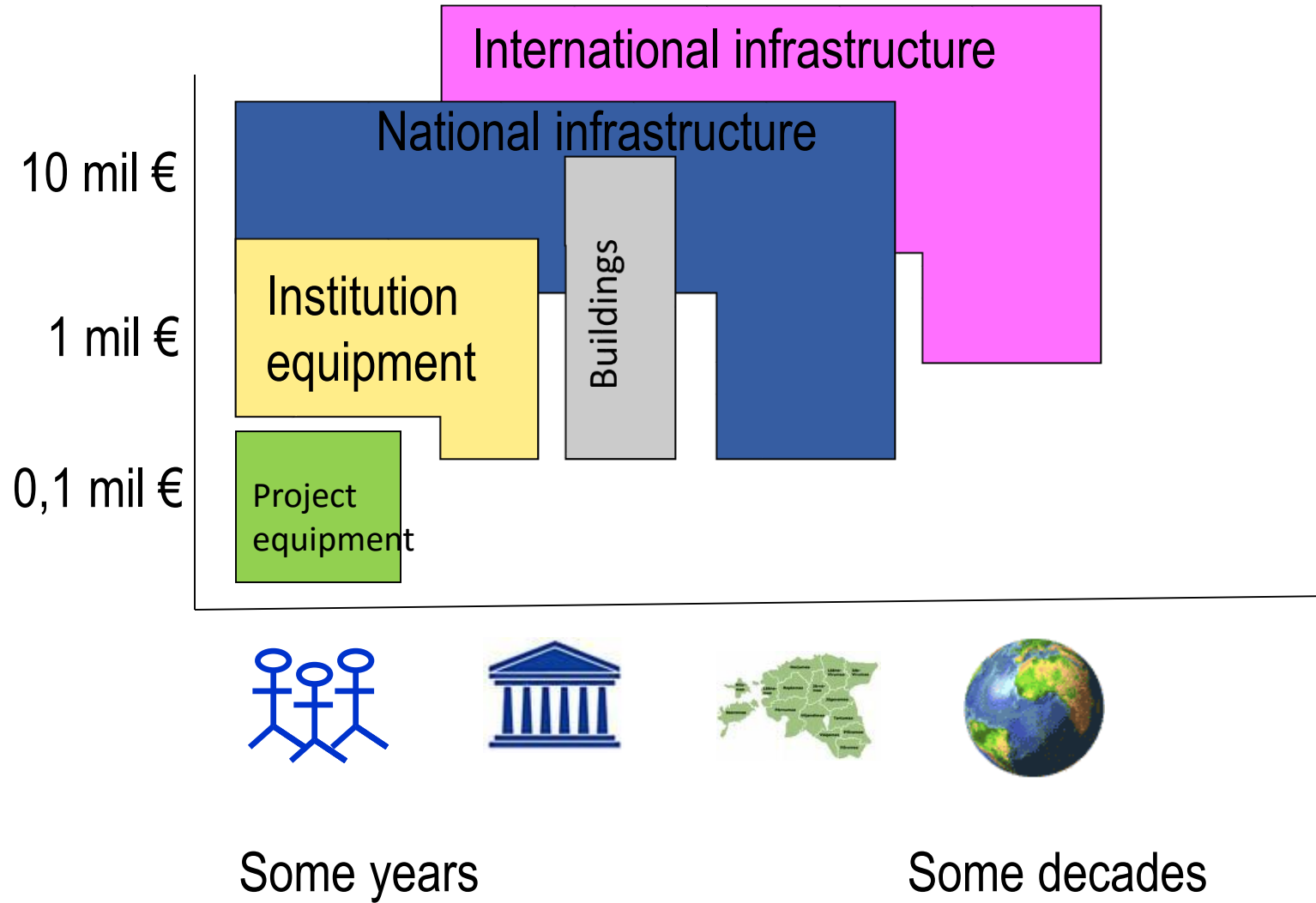
R&D infrastructure policy basic principles

- Basic principles approved by government (2008)

<http://www.hm.ee/index.php?popup=download&id=11484> (in estonian):

- Responsibility of infrastructural development will be in R&D institutions, except:
 - (new) programmic issues
 - national and international infrastructure objects;
- The goal of temporal support measures of government is to prepare sustainable and permanent system of investments and upkeep
- Support measures must address clear goals of institutional cooperation and specialisation.

Infrastructure measures



R&D infrastructure Roadmap (I)

- A planning instrument for 10-20 years, containing list of new objects or modernisations of infrastructures of national or international importance
 - **to be updated in every 3 years, first version in 2010, update 2014**
 - **Is neither financial commitment nor order of importance**
- Contains physical objects, service providing structures and participations in international organisations
 - may be single-sited, distributed with possible central services, and virtual
- The roadmap is an input for future investment decisions
 - ... is an independent policy document, approved as RD&I strategy annex

R&D infrastructure Roadmap (II)

General selection criteria:

In 2010

- Scientific excellence – national and international importance
- Serves a wide range of research community – users, training etc
- Maturity of proposal – cooperation, realistic costs, human resources, development strategy, access policy, management etc

• In 2014 (in addition)

- Sustainability, operation costs
- Smart specialisation

List of 2010 Roadmap projects (I)

1. Estonian e-Repository and Conservation of Collections
2. Estonian Centre for Genomics (**BBMRI**)
3. Center of Estonian Language Resources (**CLARIN**)
4. Estonian Environmental Observatory
5. Estonian Beamline at MAX-IV Synchrotron Radiation Source
6. Estonian Magnet Laboratory (**EMFL**)
7. Estonia in European Social Survey (**ESS**)
8. Estonian participation in the European Organization for Nuclear Research (CERN)
9. Estonian PET-Centre
10. Estonian Structural Biology Infrastructure (**INSTRUCT**)

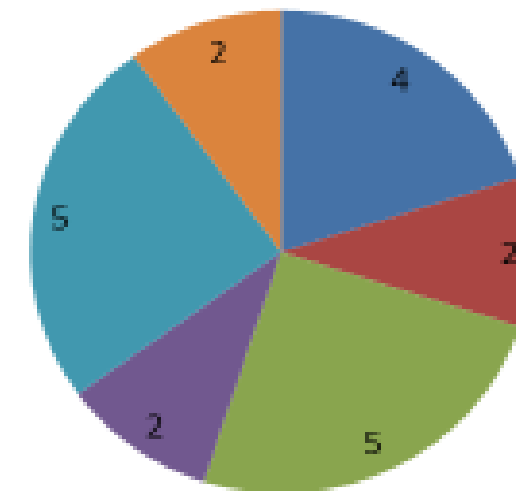
List of 2010 Roadmap projects (II)

11. Estonian Scientific Computing Infrastructure
12. Estonian Research and Education Optical Backbone Network
13. **ESSource** - European Spallation Source
14. Membership in the European Space Agency (ESA)
15. Membership in the European Southern Observatory (ESO)
16. Natural History Archives and Information Network
17. Baltic Sea Regional Research Vessel
18. Nanomaterials - Research and Applications
19. National Centre for Translational and Clinical Research (**EATRIS**)
20. Plant Biology Infrastructure - from Molecules to Crops

2010 roadmap

- 20 objects, incl:
 - 11 (+2) Estonian objects
 - 9 international
 - Additionally some Estonian object have international component
 - ... and vice versa
- ... including 5 ESFRI objects
- 22 proposals left out

Töö on tellija materjalist (!)



- e-infrastructures
- Physical Sciences and Engineering
- Materials and Analytical Sciences
- Environmental Sciences
- Biological and Medical Sciences
- Social Sciences and Humanities

EU Structural Funds 2007-2013

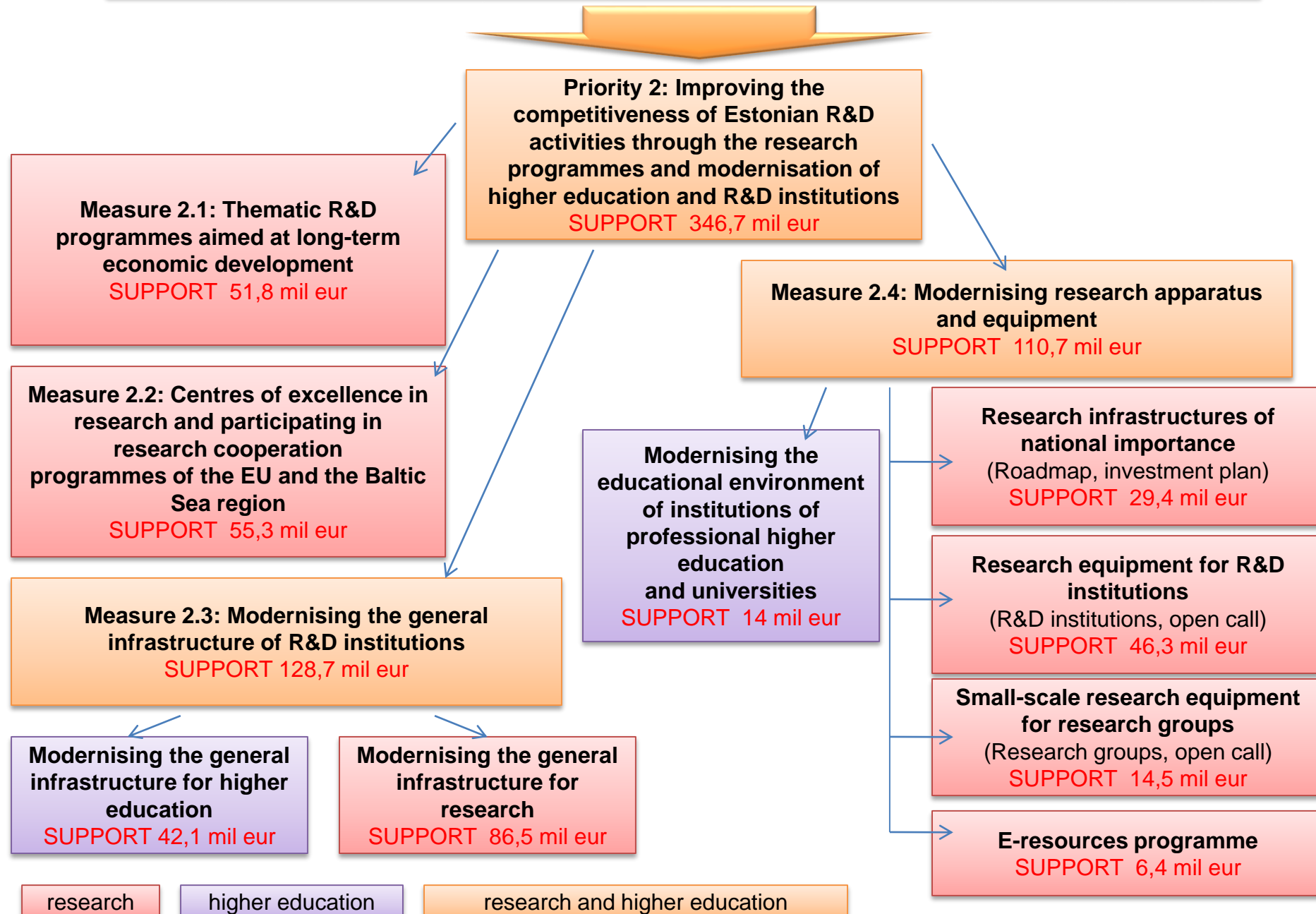
For research and higher education activities and investments,
total 364.7 M€ (total for Estonia 3.4 billion euro), incl

- Thematic R&D programmes **51.8 M€**
- Centres of Excellence **55.8 M€**
- Modernising the general infrastructure of R&D institutions
128.7 M€
- Modernising research apparatus and equipment **110.7 M€**

R&D human resource development not included here!

Entrepreneurial R&D not included here!

OP 2 – Operational Programme for the Development of Economic Environment



Funding of RI of national importance

Joint infrastructure activities between R&D institutions

Must serve the research and business community

Based on Estonian Research Infrastructures Roadmap

Financing of the start-up phase (mostly equipment, IT systems, some construction)

Investment plan until 2015 - Positive decision for 9 projects

Total support budget 29.4 M€

9 Roadmap projects selected in into investment plan and funded:

1. Estonian e-Repository and Conservation of Collections – 2.7 M€
2. Estonian Centre for Genomics (incl BBMRI) – 2.8 M€
3. Center of Estonian Language Resources (incl CLARIN ERIC) – 1.2 M€
4. Estonian Environmental Observatory – 4.2 M€
5. Estonian Scientific Computing Infrastructure (incl European Grid Initiative) – 2.8 M€
6. Estonian Research and Education Optical Backbone Network (incl The Baltic Ring of Optical Network) – 2.6 M€
7. Natural History Archives and Information Network (NATARC) – 2.2 M€
8. Nanomaterials – Research and Applications (NAMUR) – 4.9 M€
9. National Centre for Translational and Clinical Research (SIME) – 5.7 M€

RESERVE LIST of projects of investment plan

1. Estonian Beamline at MAX-IV Synchrotron Radiation Source
2. Estonia in European Social Survey (ESS)
3. Estonia in European Spallation Source (ESSS)
4. Estonian participation in the European Organization for Nuclear Research (CERN)
5. Membership in the European Space Agency (ESA)
6. Membership in the European Southern Observatory (ESO)
7. Estonian Magnet Laboratory (EML)
8. Estonian Structural Biology Infrastructure (ESI)
9. Estonian PET-Centre
10. Baltic Sea Regional Research Vessel
11. Plant Biology Infrastructure – from Molecules to Crop

Programme Internationalisation of Research

Mostly for preparatory activities, clarifying the international RI conditions, raising local capacity etc – and finally to decide whether join or not

Project/ESFRI object	Status
Estonian Beamline at MAX-IV Synchrotron Radiation Source	Although 3 M EUR has already booked for construction, final decision in Oct 2012
European Social Survey	Decided to join ESS ERIC
European Spallation Source	MoU exists, decision in autumn 2012
European Southern Observatory (ESO)	Decision in autumn 2012
Estonian Magnet Lab incl joining EMFL	Decision in autumn 2012
INSTRUCT	Decision in autumn 2012
EATRIS	Decision in autumn 2012
ELIXIR	Decision in autumn 2012

Core Facilities Programme

- The definition: Core Facility is the RI, owned by research institution(s) and used for providing core services to research topics, created in the public interest and can be used by other users according to the conditions and procedures established by the owner
- Core Facility is distinguished from other infrastructures owned by research institution(s) by its creation which was based on the public interest and openness to other users

List of Core Facilities

- Estonian Center for Genomics
- Estonian e-Repository
- Center of Estonian Language Resources
- Estonian Environmental Observatory
- Estonian Scientific Computing Centre
- Natural History Archives and Information Network
- Nanomaterials Infrastructure
- National Centre for Translational and Clinical Research

Financing of running costs (covering the costs of services to be provided to outside the Institute who owns Core Facility), funded from state budget (0,5 MEUR 2014)

2013-2014 Roadmap update

- All 20 projects from 2010 Roadmap prepared activity report (Mid-term Review)
- 12 new roadmap proposals

Evaluation

- International experts from Finland, Sweden, Denmark, Norway, Latvia and Lithuania review proposals
- 1-5 written reviews per a new proposals
- 3 panel meetings:
 - I meeting (Oct 2013): assesment of old projects
 - II meeting (Nov 2013): assesment of new projects
 - III meeting (Dec 2013): interviews of selected proposals, final decisions
- Dec 2013: Proposal of Roadmap update to Estonian Research Council
- Jan 2014 : Proposal of Roadmap update to the Ministry

List of projects of 2014 Roadmap (I)

1. Estonian Centre of Analytical Chemistry (ECAC)
2. Estonian Environmental Observatory
3. Plant Biology Infrastructure—From Molecules to High-Tech Agriculture
4. The Optical Backbone Network of Estonian Research and Education
5. Estonian Scientific Computing Infrastructure
6. **ELIXIR** Estonia—European Life Sciences Infrastructure for Biological Information
7. Infotechnological Mobility Observatory (IMO)
8. Estonian e-Repository and Conservation of Collections
9. Estonian Centre for Genomics (**BBMRI ERIC**)

List of projects of 2014 Roadmap (II)

10. Center of Estonian Language Resources (**CLARIN ERIC**)
11. Natural History Archives and Information Network (NATARC)
12. Nanomaterials—research and applications (NAMUR) /
Centre for Nano-Biotechnology and Microfabrication
13. National Centre for Translational and Clinical Research (**EATRIS ERIC**)
14. Estonian Beamline MAX-IV at the Synchrotron Radiation Source
15. European Spallation Source (**ESSource ERIC**)
16. Estonia in the European Social Survey Project (**ESS ERIC**)
17. Estonia's Membership in the European Space Agency
18. Estonian Participation in the European Organization for Nuclear Research

Thank you !