Objectives of research e-infrastructure development in Latvia

Institute of Mathematics and Computer Science, University of Latvia
Raina bulv.29, LV-1459, Riga, Latvia
imcs@lumii.lv

R.Balodis, I.Opmane 09.11.2011
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   (Latvia, Baltic, Eastern Europe)

3. Main factors which have the greatest impact on development of e-infrastructure
   - International collaboration;
   - National research development policy;
   - Outsourcing possibilities of e-infrastructure;
   - Global cooperation and/or competition;
   - Public private partnership in development of e-infrastructure.
Basic data about IMCS UL, Latvia University

Latvia - Baltic region of Northern Europe
The territory covers 64,589 km²
Population - 2,248,000 peoples

University of Latvia biggest in Baltic States:
In the academic year 2011/2012, the total number of students enrolled at the University of Latvia (UL) comprises 17,790

9 Research institutes-legal bodies
IMCS UL was founded in 1959 and it is the leading Latvian research institute in computer science and mathematics.

- **1959**: Computing Center (in the University of Latvia)
- **1987**: IMCS as a legal entity
- **1992**: Non profit research organization
- **2006**: Agency (established by University of Latvia) according to the new Science Law

**All time:**

- Togetherness with University of Latvia (name, part time professors, master program, e.g.);

- Institute status (services) in the country.
Main research fields in IMCS UL are:

- **Computer Science**
  - Mathematical foundations of computer science
  - Complex systems modeling languages and development tools
  - Graph theory and visual information processing
  - Semantic web technologies
  - Real time systems, embedded systems
  - Computational linguistics
  - Bioinformatics

- **Mathematics**
  - Mathematical modeling for technologies and natural sciences
  - Theoretical problems of mathematical methods
Staff’s current qualification

Number of doctors (69)

Number of masters (57)

Total number 214
Public institutions financing sources in 2011

- State financing: 851,736
- Structural Funds: 458,000
- Framework projects: 200,100
- Contracts: 118,900
Different layers of e-infrastructure are available today to support scientific research: GÉANT network, GRID technologies and scientific field-specific e-infrastructures (ESFRI).
48 new - or major upgrade of - Research Infrastructures of pan-European interest
(+ 3 additional projects from the CERN Council strategic roadmap for particle physics*)

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- Distributed research infrastructures
- Single sited research infrastructures

IMCS UL support national node

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Networking and international connectivity to GÉANT (IMCS is partner of GN3- http://www.geant.net ),


► national Cloud prototype with servers (IBM series 3500) and IBM Storage Area Network of ½ Peta Byte capacity ); This year IMCS has started project on upgrading Cloud Computing facilities with 1.5 Peta Byte data storage and High Performance Computing (HPC) (~ 40 Tera Flops).

► eScience functional application of e-infrastructure:
   CLARIN-http://www.clarin.eu,
   ELIXIR- http://www.elixir-europe.org ,
   radio astronomy data streaming facility from Irbene radiotelescope,
Positiv impact of international collaboration on development of e-infrastructure

IMCS participations in international organizations:

► Data networking organizations
  DANTE, TERENA, Future Internet Forum, CEENet, EGI, Nordunet, CENTR,
  RIPE NCC, ICANN, CERT, Trusted Introducer, FIRST;
► Science infrastructure for languages
  CLARIN, META-NET, Nordic Graduate School of Language Technology;
► Bioinformatics science infrastructure
  ELIXIR,
► Other international organizations
  International Mathematical Union, ARTEMISIA, ECMI, OMG,
  Association Informatics Europe;

Most important international research projects are:
  CLARIN, EGI-InSPIRE, ENGAGE, CAGEKID, OSIRIS, Geant,
  BALTICGRID, R3-COP (ARTEMIS), ReDSeeDS, MolPAGE.
Success rates in FP projects for EU countries

In FP7 Latvia has submitted 740 project proposals: 162 proposals retained; 141 contracts are concluded at the moment. Source: ECORDA-Database, March 2011.
 Latvia has one of the lowest science funding levels among EU member states. E- infrastructure in Latvia was developed separately by institutions providing services on the basis of contracts.
Latvian research infrastructure development is based on structural funds

Problems:

A. Permitted uses of funding for research infrastructure is limited: The funding can be used only for equipment purchases and services Therefore it stimulates e-infrastructure outsourcing

A. National programs in the previous planning period did not encompass concept of shared infrastructure. In the current planning period small-scale structural fund project for development of infrastructure is available however still there is no requirement of shared IT infrastructure

C. Compliance with the state aid requirements is especially onerous. In practice this non-conformity generates heavy bureaucracy.
Discussion about outsourcing in development of research e-infrastructure

Usage of structural funds stimulate outsourcing
Terena has opened the discussion:
► Which services could or should NREN provide to the R&D community before this community turns to other providers with the risk of weakening the NREN’s business case;
► Is Cloud Computing a strategic domain in which NRENs should invest;
► Is there a need in obtaining a pan-European community cloud infrastructure.
► Are Email services, collaborative platforms, e-learning services, to be considered as strategic for NREN.

Arguments that are against the outsourcing of services:
► outsourcing costs too much. Isn't it cheaper to do it in-house?
► today’s technologies, I don't need to outsource.
► I don't want to lose control of the core business.
► I can't measure the success of our initiatives if a third party carries them out.

Relevant question is competition
E-infrastructure development faces competition at a global, multi-country, regional and institutional level in the environment of growing globalization.

- Strategic choice between development of national Cloud Computing and High Performance Computing centers or usage of pan-European community cloud infrastructure raises the question of global competition.

- Competition at institutional level. Institutes has developed their own IT resources. Usage of centralized research e-infrastructure services in point of view of research institutions is outsourcing.

For IMCS the development of research e-infrastructure is its core business and must be kept in-house. But the definition of core services is obviously different in case of university IT departments, research institutes, and NRENs. Besides circumstances change and basic tenets from time to time should be revised: if the function is technical and innovative activity is no longer visible, it should be handed over to commercial enterprises.
Last important factor in development of e-infrastructure - public private partnership (PPP)

Today’s task is to strengthen research institution cooperation with the industry. If there is not enough public funding for R&D development mechanisms of attracting private investments should be analyzed. Possible examples of PPP:

1. Regional Cloud Exchange idea for integrated use of regional cloud computing facilities

2. PPP for development of whole R&D e-infrastructure
Thanks for attention!

RIGA
IMCS UL

MILAN