Welcome to eSSENCE Academy 2012!

Sigtunahöjden October 16—17, 2012

Ingela Nyström, Professor
Coordinator of eSSENCE

UPPSALA UNIVERSITET

LUND UNIVERSITY

October 16, 2012

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e-Science…

- has emerged as the third pillar underlying research, complementing theory and experiments
- builds on developing, implementing and using computer-based tools in research where traditional experimental and theoretical approaches are not sufficient
- provides new opportunities for collaboration in academia and industry, within the same and different disciplines, and over short and long geographical distances
- is connected to the development of computational tools and methods, as well as to the readiness of application areas to novel paradigms and to meet challenges from new directions

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e-Science Initiatives in Sweden

- eSSENCE (LU, UmU, UU)
  www.essenceofescience.se
- SeRC (KTH, SU, KI, LiU)
  www.e-science.se
- e-Science Centre (Chalmers)
  www.chalmers.se/rss/e-science-en
- Initially, funded 2010—2014.
  Goal: permanent funding

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Background

e-Science selected as one (of 20) Strategic Research Areas in 2008 Government Bill on Research and Innovation

- In total 1350 MSEK/year additional funding to Swedish Universities
- Grants for 2010-2014 (3-year ramp up)
- Intention that the funding becomes permanent after evaluation
- 56 MSEK/year to e-Science research:
  - SeRC grant 30 MSEK/year
  - eSSENCE grant 26 MSEK/year

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Vision

Provide excellence and scientific solutions at all stages of the e-Science process

- e-Science for disciplinary progress in distributed research collaborations
- Interdisciplinary collaboration for progress in methods and tools for e-Science applications

Advancing science through leading computation, information and communication technologies

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Components

Illustration: Gustaf Kylberg

* Methods: Mathematical/Statistical Models, Computational Algorithms, Sensor Technology, Database Technology, High-Performance Parallel Computing, Distributed IT Systems and Grid Computing, Visualization and Image Analysis

Enabling Science:

Infrastructure

- **Swedish National Infrastructure for Computing (SNIC),** www.snic.vr.se
  - **Lunarc**
    www.lunarc.lu.se
  - **HPC2N**
    www.hpc2n.umu.se
  - **UPPMAX**
    www.uppmax.uu.se
- **Swedish University Computer Network (SUNET)**, www.sunet.se

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SUNET

- The Swedish University Network
- www.sunet.se
- Supports the needs of the research and education communities within Sweden
- Offers high-capacity computer networks
- Hosts a wide variety of services for connected organisations
- The Swedish Research Council is administratively responsible for SUNET
- Director of SUNET: Hans Wallberg

Principal Investigators

- Prof. Tord Ekelöf, Physics and Astronomy, UU
- Prof. Hans Ellegren, Evolutionary Biology, UU
- Prof. Erik Elmroth, Computing Science, UmU
- Prof. Olle Eriksson, Physics and Materials Science, UU
- Prof. Kersti Hermansson, Materials Chemistry, UU
- Prof. Bo Jönsson, Theoretical Chemistry, LU
- Prof. Bo Kågström, Computing Science, UmU
- Prof. Tore Risch, Information Technology, UU
- Prof. Anders Lindroth, Physical Geography & Ecosystem Analysis, LU
- Prof. Sven Strömqvist, Linguistics and Phonetics, LU

eSSENCE Organization

- *Programråd* –
  Program Council
- *Programberedning* –
  Management Group
- *Samordnare* –
  Director
- Administered by the Faculty of
  Science and Technology, UU

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eSSENCE Program Council

- Ingemar Kaj, UU, Chair
- Sven Strömqvist, Dean LU
- Åsa Rasmuson-Lestander, Dean UmU
- Martin Norin, Inovacia
- Ingela Nyström, UU
- Irene Kolare, administrative director UU

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eSSENCE Management Group

- Göran Sandberg, LU
- Magnus Ullner, LU
- Bo Kågström, UmU
- Erik Elmroth, UmU
- Gunilla Kreiss, UU
- Johan Åqvist, UU
- Ingela Nyström, UU, Chair
- Carmen Medina, research secretary UU

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eSSENCE Current Status

- A set of *focus areas* has been selected for funding
  of eSSENCE *programs*
- Several *PostDoc projects* initiated after application
  rounds
- A group of application experts supports researchers
  in usage of HPC
- Workshops
- Seminars
- Host of 35th CERN School of Computing 2012
- www.essenceofescience.se   *Thanks to Pavlin Mitev!*

eSSENCE Research Areas & Programs
with collaboration between Universities

Materials Science
- Materials physics
- Chemistry of complex materials
- Nano materials

Human Function and Environment
- Linguistics and visual information
- Pattern recognition in the living brain
- Economic demography
- Ecosystems and climate change

Life Science
- Computational biology
- Bioinformatics

Generic e-Science Methods and Tools
- Distributed computing services and grid
- Computational algorithms ... also for GPU:s
- High ... computing ... technology

In total some 25 projects

eSSENCE Budget (in kSEK)

University	2010	2011	2012	2013	2014
LU (35 %)	3 500	4 900	9 100	9 100	9 100
UmU (20 %)	2 000	2 800	5 200	5 200	5 200
UU (45 %)	4 500	6 300	11 700	11 700	11 700
Total	10 000	14 000	26 000	26 000	26 000

- 90 % of the budget
  - Distributed to researchers at each University
  - How this distribution is performed is evaluated in the Management
    Group to identify possibilities for collaboration
- 10 % of the budget
  - Used for joint activities such as workshops, conference participation,
    involvement in higher education, coordination, etc.
  - In 2012, a program has been launched identifying and supporting
    a research area where PostDocs should collaborate cross-university

Academy days 2012

- 60 participants
- 12 oral presentations
- 16 posters
- Panel discussion
- Lunches, dinner, coffees

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