eTEC-BIG 2019 - Information Event
Innovative eScience Technologies for ‘Big Science’

Frank J. Seinstra
Amsterdam, 09/04/2019
Purpose of today

• eScience Center is...
  • Project funder & project partner

• SURFsara is...

• eTEC-BIG call specifics
  • Help towards pre- & full proposal
14:00 - 14:30  eScience Center & Call Overview (Frank)
14:30 - 14:50  eScience Core Technological Competences (Jason)
14:50 - 15:20  SURFsara, Expertise & e-Infrastructure (Axel)
15:20 - 15:30  Break
15:30 - 16:00  Collaborative Project Examples (Meiert, Axel, ...)
16:00 - 16:30  Questions
16:30  Drinks
Netherlands eScience Center
Science Park, Amsterdam
Initiative & Goals

- Initiative SURF, NWO (2011)
- Bridge: scientific research & ICT
Initiative & Goals

- Initiative SURF, NWO (2011)
  - Bridge: scientific research & ICT
- Stimulate new ways of research not possible without (advanced) ICT
- Enable scientific breakthroughs
- Promote technology re-use (cross-disciplinary)
- Enhance multi-disciplinary eScience collaborations
  - Universities, Big Data centers, SURF*, Industry, ...
Enabling digitally enhanced research through efficient utilization of data, software and e-infrastructure
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Reusable, Sustainable Research Software
eScience Research Engineers

• Translate modern ICT into research solutions
• Collaborate closely with domain experts
• Make knowledge and software publicly available
• => No ‘code monkeys’
eScience Coordinators

- Experienced eScience Research Engineers
- Line managers
- (Additional) Sparring partners for Principal Investigator
Principal Investigators

• From ‘all’ academic disciplines
• Wish to take advantage of digital technology
• Enable:
  • new / more advanced research questions
• Enhance:
  • change methodologies
  • change (daily) research practice
Reusable Research Software: Core Expertise Areas

- Big data analytics:
  - Computer Vision
  - Data Mining
  - Machine Learning
  - Natural Language Processing
  - Statistics
  - Visualization

- Efficient computing:
  - Accelerators
  - Distributed Computing
  - High Performance Computing
  - Numerical Modelling and Algorithms
  - Workflows and Orchestration

- Optimized data handling:
  - Data Assimilation and Integration
  - Databases
  - Handling sensor data
  - Linked Data and Semantics
  - Real-time Data Analysis
Project Funding (1)

- Open Calls: ~3.5 M€ per year
  - Also with other funders
- ‘All’ domains
- Partially ‘in cash’, partially ‘in kind’
Project Funding (2)

• Calls 2018, early 2019:
  • **Big Data & Health 2018/2019**
    (with NWO, Commit2Data, ZonMW, Hartstichting, LSH)
    • Life Sciences & eHealth
    • ICT Science
  • **GO 2018/2019** (with NSO/NWO)
    • Earth & Planet Sciences (with NSO/NWO)
  • **ESI 2019** (with NWO, Topsector Energy, SIA)
    • Environment & Sustainability
    • Humanities & Social Sciences
    • ICT Science
Other Options

- Collaborate with eScience Center via
  - Open Calls for Proposals
    - Published each year
  - Partner in Project Consortia / Proposals
    - e.g. H2020, ...
  - Direct Collaboration

see also: https://www.esciencecenter.nl/lets-work-together
eTEC-BIG 2019

Innovative eScience Technologies for ‘Big Science’
NLeSC Calls – earlier years

- Domain-oriented call (ASDI)
  - Driven by domain questions

- Technology-oriented call (DTEC)
  - Driven by ICT questions
• Technology- & domain-oriented call (eTEC)
  • Focus: eScience technologies with direct impact on ‘Big Science’ domain
Big Science—broadly defined

• Technological forerunners; typically:
  technological developments are expected to arrive in & impact *other* (non-Big Science) domains only years or decades later

• Research directions whose
  1) challenges in terms of complexity and
  2) needs w.r.t. data analytics / data management / processing power far exceed that of other research endeavours today

• Examples... (deliberately non given!)
  ‘Big’ is relative
• Focus on: *innovative eScience technologies & software*
• Driven by a *direct demand* from a specific Big Science research area

• Deliver *innovative & reusable* prototype ‘eScience instrument(s)’
  • e.g. software tools, interfaces, algorithms, methods, ...
  • proof-of-concept: applied to & verified for at least 1 Big Science problem

• PI, typically:
  • technology-oriented *from Big Science domain*
  • domain-oriented *from ICT science* (Big Science co-applicant required!)
• Scalable Machine Learning & AI

• Streaming Data Processing

• Large-Scale (distributed) Data Organization, Management & Semantics

• Note
  • award 1 project funded per Technical Research Direction
  • ‘very good’ or ‘excellent’
  • if your project matches more than one of these, still: select one
Available Budget - What can be requested?

- 3 Projects, each:
- Typically: 1 Postdoc position, 2 years (VNSU tables)
- Max. k€ 15 in additional funding
- Total in cash max. k€ 170

- 1.3 PYR eScience Research Engineer(s) employed by eScience Center
- 1.0 PYR Technology & e-Infra Expert(s) employed by SURFsara

- [Additional PYR for sustainability & generalization of software results and inclusion in RSD need not be included in requested budget.]
• Min. 85% directly on behalf of the project
  • eScience Research Engineer
  • Project coordination (+/- 1 hour a week)
  • Communication

• Max. 15% for training & knowledge sharing
  • Internal communication
  • Knowledge transfer
  • Training
Criteria

• Scientific quality (25%)
• Scientific novelty and impact (25%)
  • => include: research horizon, clear milestones, “delta”
  • => ‘impact’ broadly defined

• eScience and technology state-of-the-art (25%)
• Lateral impact, re-use, sustainability (25%)
  • => new tooling? new use / combination of existing tooling?
  • => clear re-use potential in domain... and across domains
Review procedure (1/2)

- 9 May: deadline pre-proposal
- Review by independent assessment committee (science & eScience)
- Assessment of eScience aspects by eScience Center & SURFsara
  - Non-binding advice to independent assessment committee

- Early July:
  - Non-binding assessment committee advice to applicants
  - If positive: mid procedure meeting eScience Center & SURFsara
Review procedure (2/2)

- August 29: deadline full proposal
- Independent external (international) peer-review
- End of October: rebuttal applicants
- Mid-November: ranking by assessment committee / advice to board
- Mid-December: decision by Board of Netherlands eScience Center and SURFsara Directie
Other aspects (Jason)

- Open access publications and FAIR data / software
- Data management section & plan
- Software sustainability section & plan
- Plans to be submitted maximum 4 months after start of project
• Use-or-explain:

• Projects \textit{without} e-Infrastructure needs should give brief explanation
• Projects \textit{with} e-Infrastructure needs should select the Dutch National e-Infrastructure as first option, and indicate expected extent of use
  • Use of other (international, commercial, ...) e-Infrastructure must be explained

• Use of e-Infrastructure is \textit{not} a review criterion
More questions?

eScience Center, eScience criteria:
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