e-FISCAL

e-infrastructure CAPACITIES

LinkSCEEM-2 and High Performance Scientific Computing Panel 13 December 2011

e-AGE: 1st International Platform on Integrating Arab e-Infrastructure in a Global Environment

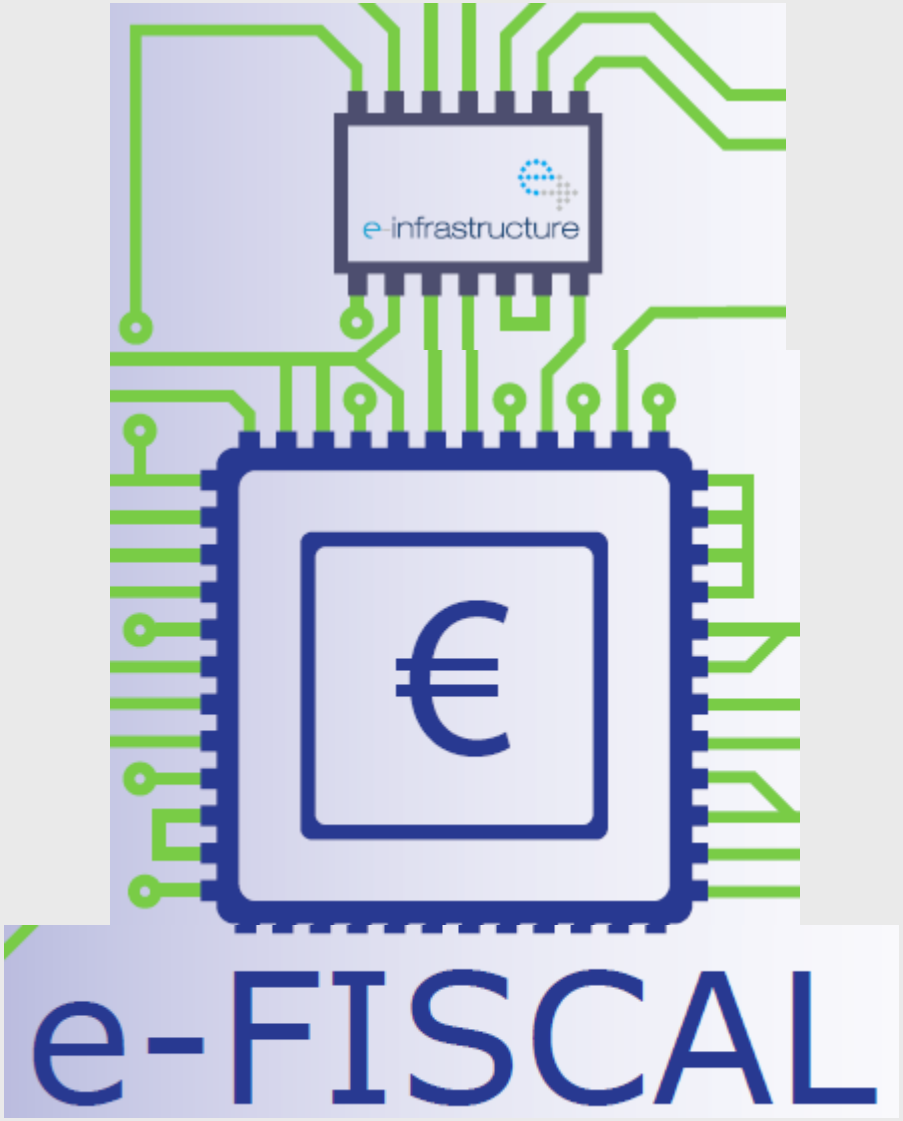
Towards Sustainable Computing e-Infrastructures across the Mediterranean

Fotis Karagiannis,
Athens University of Economics and Business-Research Center
AUEB-RC

It’s all about knowing the costs..

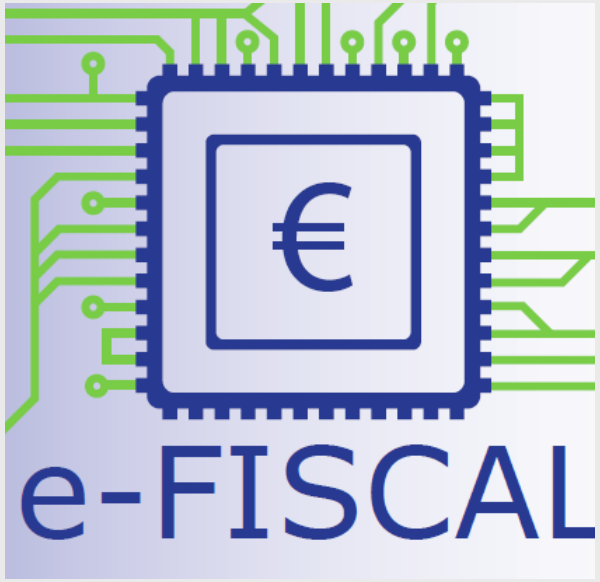
…their composition..

…and putting it in context!



Project Title

- Financial Study for Sustainable Computing e-Infrastructures



Main objectives

- ***Analyse*** *the costs of the current European dedicated High Throughput and High Performance Computing (HTC/HPC*) e-Infrastructures for research*
  - **HTC/HPC=loosely/tightly coupled parallel jobs (HTC=Grid)*
- ***Compare*** *them with the closest equivalent commercial leased or on-demand offerings*
  - *Cloud computing!*
- ***Evaluate*** *the findings through a report*

Consortium

AUEB-RC

EGI.eu

NUIG* (ICHEC)

ETL

* National University of Ireland, Galway / Irish Centre for High End Computing (ICHEC)

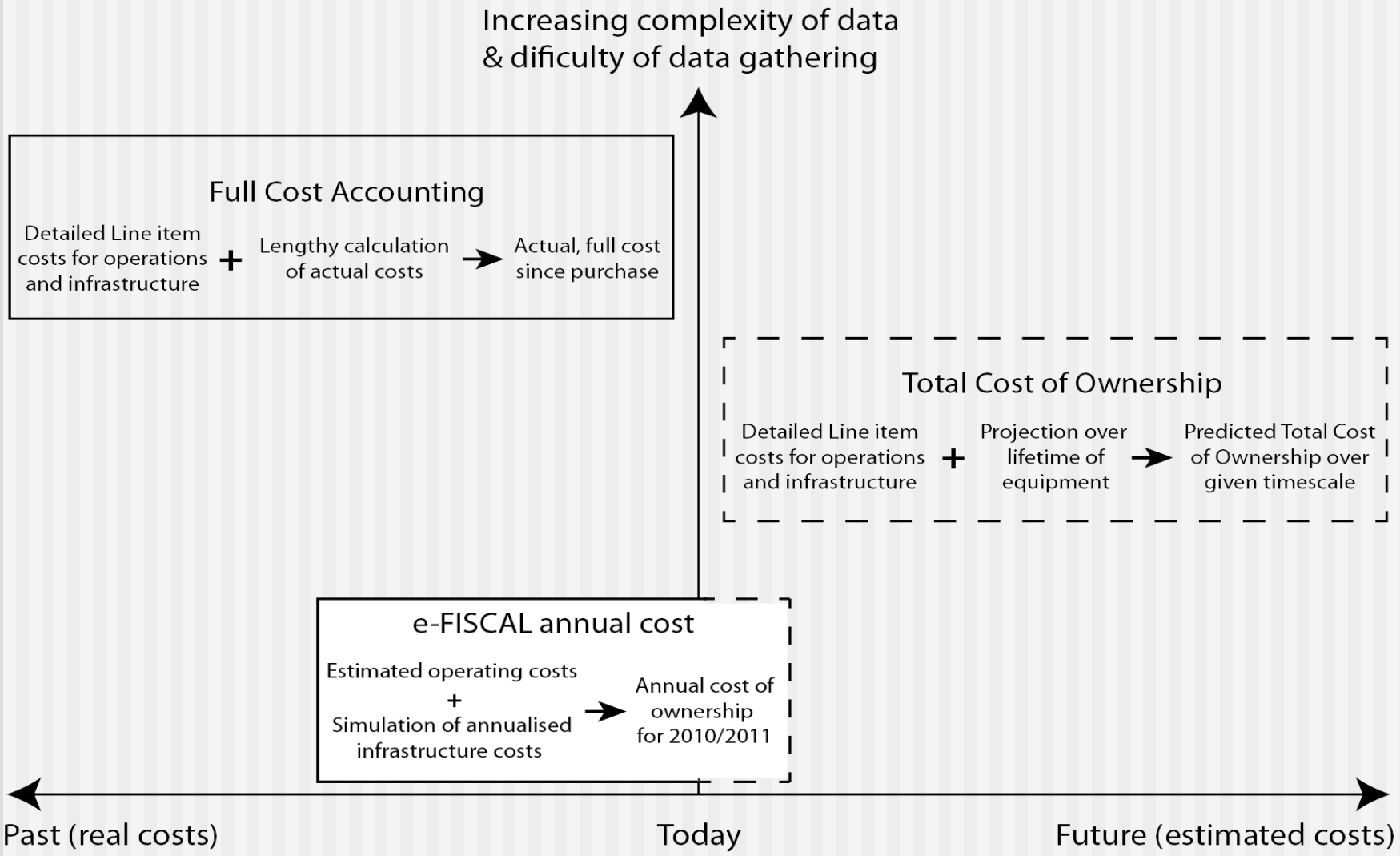
Background

- First in-depth study in Europe
  - Large sample of participants, HTC/HPC, comparisons with Clouds
- Builds on previous financial exercise
  - e-IRGPS2 project
  - Dealt with HTC (Grids) only, small number of NGIs involved -> initial charting of the area
- e-IRGSP2 highlighted the complexity
  - Findings available at http://www.e-irg.eu/publications/
  - Large range for overall cost estimate, **but** indicates EGI costs as competitive!

Overall approach

- 2-phase approach
  - 1st phase: Basic questionnaire
  - 2nd phase: In-depth discussions
    - Interviews to cross-check data and get more info!
- Questionnaire launched this month!
  - www.efiscal.eu/survey
- Interested in feedback from:
  - NGI/PRACE country coordinators!
  - Other HPC/HTC site managers!
- Contribute to the sustainability discussions

Methodology



Methodology

Logical CPUs, storage devices, auxiliary equipment, connectivity devices
X
Prices per logical CPU, for storage, etc.
retrieved by questionnaires

→ **Approximation of the physical infrastructure investment cost**

↓

Development of the financial model

Yearly Operational Expenditures (OPEX)
Software, Personnel, Electricity, Premises, Network connectivity, Other operating costs
(questionnaire)

Yearly Capital Expenditures (CAPEX)
Depreciation of the physical infrastructure costs
(questionnaire)

Total yearly cost of ownership

Contributing to sustainability..

- Special attention:
  - Performance benchmarking with commercial clouds
    - **N.B.** Can't compare prices with costs!
  - Confidentiality/Anonymity of data!
    - Increase response rate, catch "outliers" and non-standard operational models
    - Cross-checks/validation
  - Inclusion of considerations beyond "plain" cost
    - Trust, reliability, customer satisfaction…
- Outputs:
  - Generic cost model
  - Cost per CPU core, Capex/Opex ratio, Personnel per CPU core…
- Cost is different from value!

Thanks!

- All material and questionnaire available in www.efiscal.eu

- Looking forward to collaborating with you!

info at efiscal.eu

Project in a nutshell

- **Project acronym:** e-FISCAL
- **Contract n° :** RI-283449
- **Project type:** CSA-SA
- **Start date:** 01/08/2011
- **Duration:** 18 months (end 31/1/2013)
- **Total budget:** 392.523 €
- **Funding from the EC:** 349 999 €
- **Total funded effort in PMs:** 33.75
- **Web site:** www.efiscal.eu