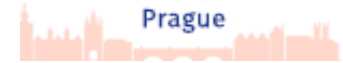




European HPC
Summit Week

9 - 12 May 2016
Prague



EXDCI – European eXtreme Data and Computing Initiative

EXDCI and its relation to Weather and Climate

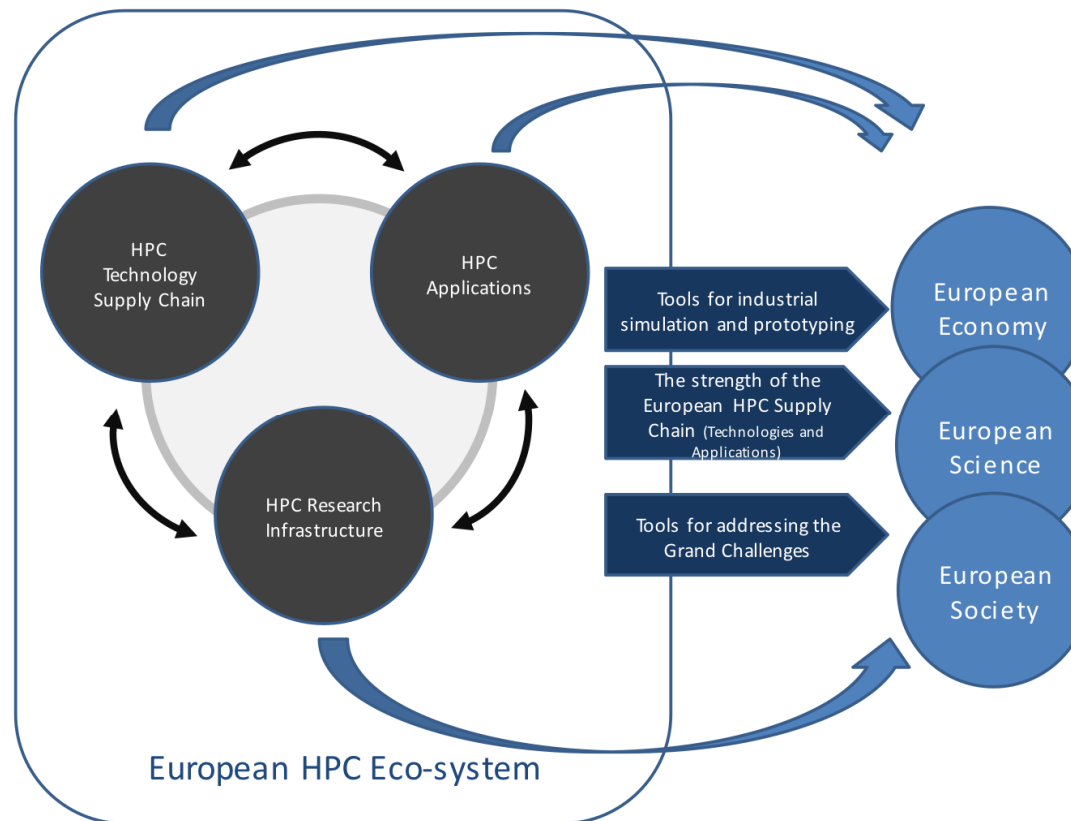
Sergi Girona
EXDCI Coordinator

EXDCI @ 4th ENES HPC workshop

April 6, 2016



- **Coordinate** the development and implementation of a common strategy for the European HPC Ecosystem





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European HPC Summit Week

EXDCI Workshop > Monday 9 to Tuesday 10

PRACEdays16 > Tuesday 10 to Thursday 12

ETP4HPC Extreme-Scale
Demonstrators Workshop > Thursday 12

from 9 to 12
May 2016

Prague
Czech Republic

The European Extreme Data & Computing Initiative (EXDCI) objective is to coordinate the development and implementation of a common strategy for the European HPC Ecosystem. The two most significant HPC bodies in Europe, PRACE and ETP4HPC, join their expertise in this 30-month project with a budget of € 2.5 million, starting from September 2015. EXDCI aims to support the road-mapping, strategy-making and performance-monitoring activities of the ecosystem, i.e.:

- Producing and aligning roadmaps for HPC Technology and HPC Applications
- Measuring the implementation of the European HPC strategy
- Building and maintaining relations with other international HPC activities and regions
- Supporting the generation of young talent as a crucial element of the development of European HPC

The new European HPC research landscape

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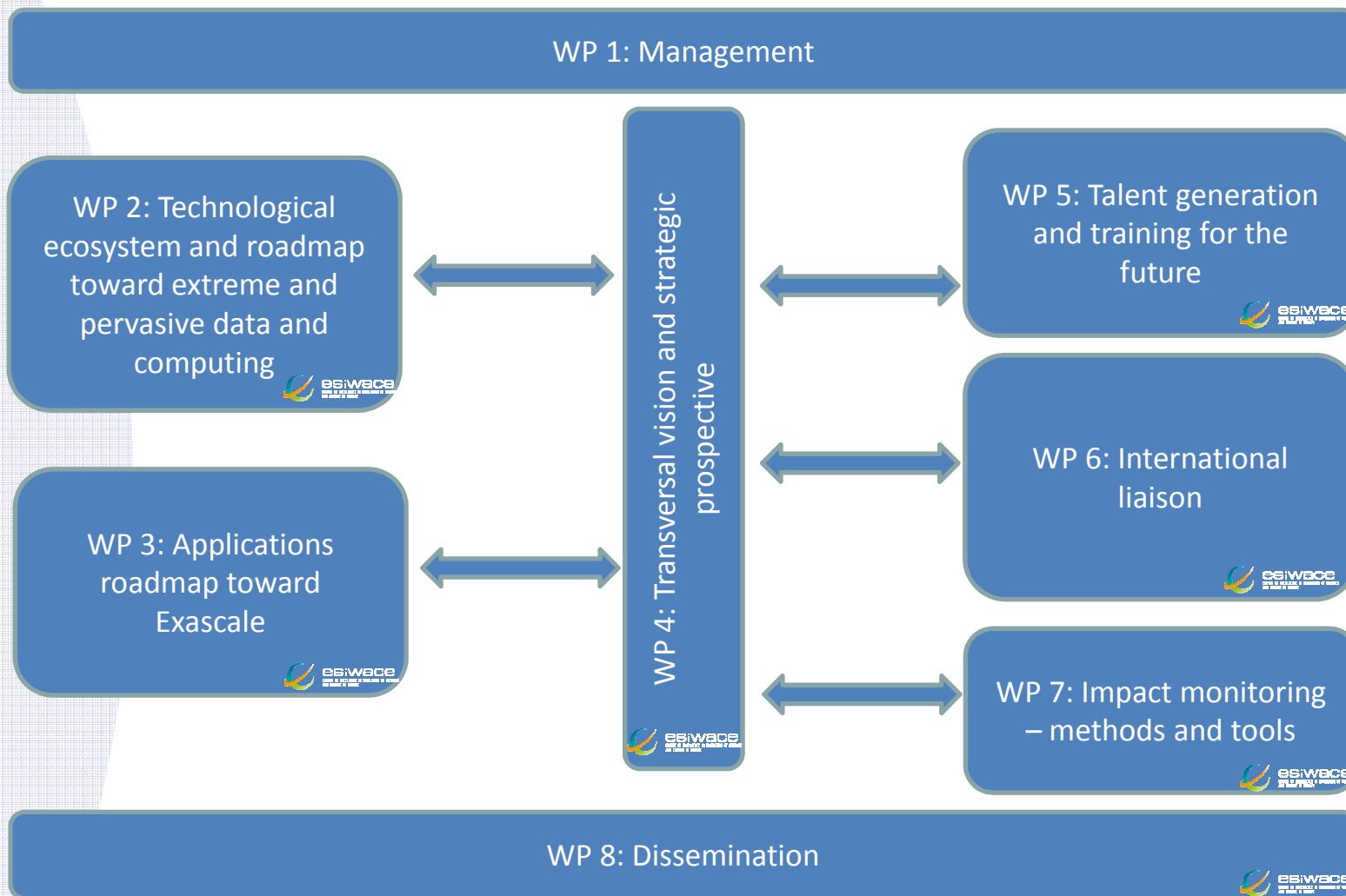
Project Start: Autumn 2015

EXDCI structure



European HPC Summit Week

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Google "Public Call for comments on SRA"



We welcome your comments on the current SRA
<http://www.etp4hpc.eu/strategic-research-agenda/>

Strategic Research Agenda | ETP4HPC

www.etp4hpc.eu/strategic-research-agenda/

6 days ago - Public Call for Comments on ETP4HPC Strategic Research Agenda. Our organisation would like to receive feedback on this document from the ...

Public Call for Comments for ETP4HPC Strategic Research ...

<https://www.surveymonkey.com/.../ETP4HPC-SRA2-PUBLIC-CALL4C...>

The updated Strategic Research Agenda (SRA) of ETP4HPC is now available at the following location: <http://www.etp4hpc.eu/strategic-research-agenda/>

Public Call for Comments on ETP4HPC Strategic Research ...

primeurmagazine.com/flash/AE-PF-12-15-16.html

2 days ago - Public Call for Comments on ETP4HPC Strategic Research Agenda for exascale supercomputing in Europe December 2015. 13 Dec 2015 ...

Primeurflash 20151213 - Primeur Magazine

primeurmagazine.com/contentflash20151213.html

2 days ago - Public Call for Comments on ETP4HPC Strategic Research Agenda for ... Agenda on November 24th 2015, the ETP4HPC organisation would ...

ETP4HPC, EXDCI and SESAME Net - new HPC initiatives in ...

e-irg.eu/.../etp4hpc-exdci-and-sesame-net-new-hpc-initiatives-in-europe-...

Apr 9, 2015 - The HPC Centres of Excellence Call amounts to 14 million euro. ... will require an investment of 15 million euro; the Public Procurement of innovative HPC systems has been estimated at 26 million; 698 Views, 0 Comments.

You visited this page on 12/2/15.

Catherine Gleeson | LinkedIn

<https://www.linkedin.com/in/catherine-gleeson-151229b7>

Amsterdam Area, Netherlands - ETP4HPC - European Technology Platform for HPC - ETP4HPC

Catherine Gleeson. ETP4HPC - European Technology Platform for HPC ... Public Call for Comments on ETP4HPC Strategic Research Agenda. December 11 ...

eInfrastructures (@eInfraEU) | Twitter

<https://twitter.com/einfraeu>

"Public Call for Comments on ETP4HPC Strategic Research Agenda" by @Etp4H on ... New #H2020 #einfrastructures call for support to policy and international ...

Images for etp4hpc public call for comments

Report images



Next SRA-related events in H1 2016

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- Extreme-Scale Demonstrators Workshop @ HPC summit/May 12th
 - focussed on the EsD definition (engage potential players, further implementation details)
 - at this event the three pillars for the EsD mission (CoE, HPC centres and the FETHPC1 project speakers) are invited
- ISC16 – June 23rd
 - Scope: Feedback session on SRA directions, content and value to shape the next update
 - Invited are:
 - End-users, ISVs
 - International HPC experts
 - Members from SRA workgroups
- Level set with HPC application experts (EXDCI Technical meeting) – September 21&22
- Technical workshop with Big Data Value Association (BDVA) May/June

- Objectives
 - Provide updated roadmaps of needs and expectations of scientific applications
 - Provide inputs to the update the PRACE Scientific Case in order to support PRACE in the deployment of its (Pre)Exascale pan European HPC research infrastructure
- Initiative to create an update of the Scientific Case and capture the current and expected future needs of the scientific communities
 - Weather, Climatology and solid Earth Sciences
 - Astrophysics, HEP and Plasma Physics
 - Materials Science, Chemistry and Nanoscience
 - Life Sciences and Medicine
 - Engineering Sciences and Industrial Applications

Applications roadmap towards Exascale: Ingredients

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Applications roadmap towards Exascale: Ingredients

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- PRACE Scientific Case
- Issued end of 2012 by the PRACE Scientific Steering Committee
- Needs and roadmaps from different scientific and industrial communities
- Key recommendations :
 - Persistent Pan EU HPC infrastructure;
 - Development of algorithms and system tools;
 - Integrated compute & data;
 - Education & Training;
 - Thematic centers (aka CoE)...



EXDCI @ ORAP

March, 17 2016

Applications roadmap towards Exascale: Ingredients

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The EESI2 reports and recommendations



- Issued mid 2014 and mid 2015
- 5 Applications working groups
- 43 experts from 10 countries, academia & industry
- 3 specific reports on applications published
- Active participation on EESI2 global recommendations includes:
 - Parallelisation in Time with examples on applications
 - Uncertainty Quantification in massively parallel codes
 - In-situ Data Processing in Extreme Simulations
 - Efficient Couplers for Extreme Computing
 - Data Centric Approach in turbulent flows



EXDCI @ ORAP

March, 17 2016

Applications roadmap towards Exascale: Structure in a nutshell

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- Organisation
 - 4 working groups of around 30+ experts
 - Industrial and engineering applications
(EDF : Yvan Fournier, University of Aachen : Heinz PITSCH)
 - Weather, Climatology and Solid Earth Sciences
(Univ. Salento/CMCC : Giovanni ALOISIO, JCA Consultance: Jean-Claude Andre)
 - Fundamental Sciences
(CEA : A. Sacha BRUN, JSC: Stefan KRIEG)
 - Life Science & Health
(BioExcel CoE/ KTH : R. Apostolov)
 - Coordination, consolidation of application roadmaps and inputs to the update of the PRACE Scientific Case
- Outcome and deliverables
 - First set of reports and recommendations toward applications (November 2016)
 - Third version of the PRACE SSC Scientific Case – a full bottom-up new version of PRACE SSC Scientific Case, following the last one published in 2012 (November 2017)

Transversal vision and strategic prospective: Targets

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- Objectives
 - Building a global vision of the roadmaps, towards a shared European e-infrastructure roadmap (with DG-CNECT, DG-RTD, ESFRI, e-IRG)
 - Identifying synergies to lead to a co-design approach
- Ecosystem transversal relationships
 - Centres of Excellence, FET HPC Projects, Eurolab4HPC
- SME
 - Support Start-Ups and SMEs and see how to accelerate the creation of new start-ups that could potentially be created due to the technological progress achieved within the Horizon 2020 FETHPC Program.
 - Interest for identification of start-ups creation opportunities in the scope of the CoEs and the FET HPC projects
 - Needs of SMEs participating in CoEs and FET HPC projects
- Survey recommendations continuity (e.g. from EESI)

- Status
 - Coordination for establishing “questionnaire” common to ETP4HPC and PRACE to collect ecosystem progresses (available at <https://exdci.eu/questionnaire-coe-fet-hpc>)
 - Coordination with EuroLab4HPC
 - Participating to the exchanges events: ISC 2016 Bof, European HPC Summit Week, Big Data and Extreme Scale Computing (BDEC) workshops
 - Identification of potential technological disruptions
- Next steps
 - SME actions discussion at the European HPC Summit week
 - Building a first set of recommendations based on the ecosystem inputs

- Addressing the shortage of HPC skills in academia and industry, by:
 - Promoting HPC and HPC skills to young people as exciting and rewarding areas for study and employment;
 - Supporting employers in job specification and recruitment of staff with appropriate HPC skills;
 - Undertaking training gap analysis across the whole HPC Ecosystem, with a view to producing a synthesised training roadmap for Europe;
 - Supporting the development of a community of HPC training providers.

- Supporting Talent Generation
 - To promote the importance of HPC skills to young people.
 - Creating material to present at eg local science festivals, university visits, etc:
 - To present HPC in a gender-neutral way, to try to improve the gender balance within the HPC community;
 - To highlight the many and varied jobs that exist, both in HPC community and professions combining modelling skills with domain expertise, eg engineering, climate modelling.
 - Initial set of 5 HPC career case studies produced; more to follow
 - <http://www.exdci.eu/CaseStudies/>

- Facilitating HPC Staff Recruitment
 - “Job Centre” portal to be set up, providing:
 - Sample job descriptions (to help employers specify the skills they need);
 - Links to sites where HPC jobs are listed;
 - Details of jobs offered by PRACE, ETP4HPC and others, specifically promoting opportunities in Europe.
- Identifying and Meeting Future Training Needs
 - A searchable portal of training courses and providers will be created.
 - A Synthesised Training Roadmap will be produced, based on Gap Analysis and future requirements.
 - A community of training providers will be established, to coordinate European efforts in HPC training and education.

- Objectives
 - Mapping and analysis of national and international R&I programs/activities/research agendas in HPC towards exascale, and convergence of Exascale with Exabyte (big compute and big data).
 - Coordination with and participation in relevant international activities.
 - Establish and maintain a global network of expertise and funding bodies in the area of Exascale computing.
 - Act as a proactive European voice and representative in the International Exascale Software Community and BDEC initiative.
- Coordination with
 - SPPEXA (Germany-France-Japan).
 - Belmont Forum CRA on e-infrastructures and data (14 countries).
 - Coordinated Research on E-infrastructures (CRE) (DG-CNECT, RDA).
 - BDEC (EU-USA-Japan)

- Opportunities:
 - Analysing the activities of the European projects (mainly the ones from the FET HPC 1 call) and other HPC Ecosystems actions with an objective to identify the areas of:
 - (1) technology provision,
 - (2) infrastructure and
 - (3) application resources that can benefit from international collaboration.
 - Federating the international contacts to prevent each project from having to develop its own network.
 - Identifying tools suitable for fostering such relationships

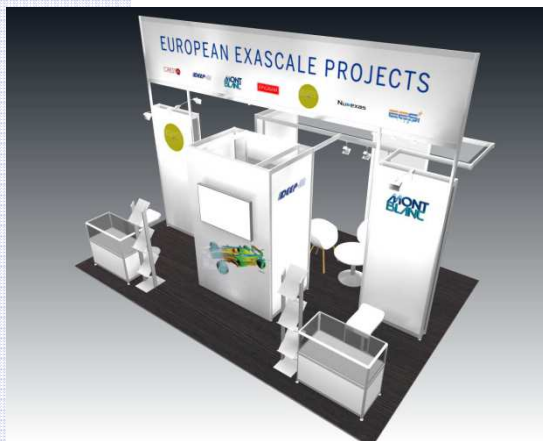
- Create the necessary analysis tools to support informed decision-making in relation to:
 - the development of the European HPC Ecosystem
 - the impact of the Research & Innovation activities linked to the HPC cPPP strategy
- It is of utmost importance to measure and show the effectiveness of H2020 HPC programmes and to involve all stakeholders in this effort – especially for the collection of some data which is needed for proper monitoring.
- ETP4HPC and PRACE are joining forces in this effort, building on previous work
 - PRACE KPIs have been defined and implemented, and are regularly updated
 - ETP4HPC and the EC set-up a set of KPIs to be monitored within the HPC cPPP
 - Use of surveys and direct interaction with FETHPC projects, CoEs, ETP4HPC members to collect data and consolidate methodology
 - See <https://exdci.eu/activities/kpi>

Events

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Event	Date	Location
EXDCI workshop	Rome, Italy	29-30 September 2015
European HPC Summit Week: EXDCI workshop	Prague, Czech Republic	9 -12 May 2016
ISC'16: shared booth with European Exascale Projects	Frankfurt, Germany	19-23 June 2016
SC16: shared booth with PRACE booth	Salt Lake City, USA	13-18 November 2016



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from 9 to 12
May 2016

Prague
Czech Republic



Thank you for your attention

Sergi Girona
EXDCI Coordinator
sergi.girona@bsc.es

EXDCI @ 4th ENES HPC workshop

April 6, 2016

