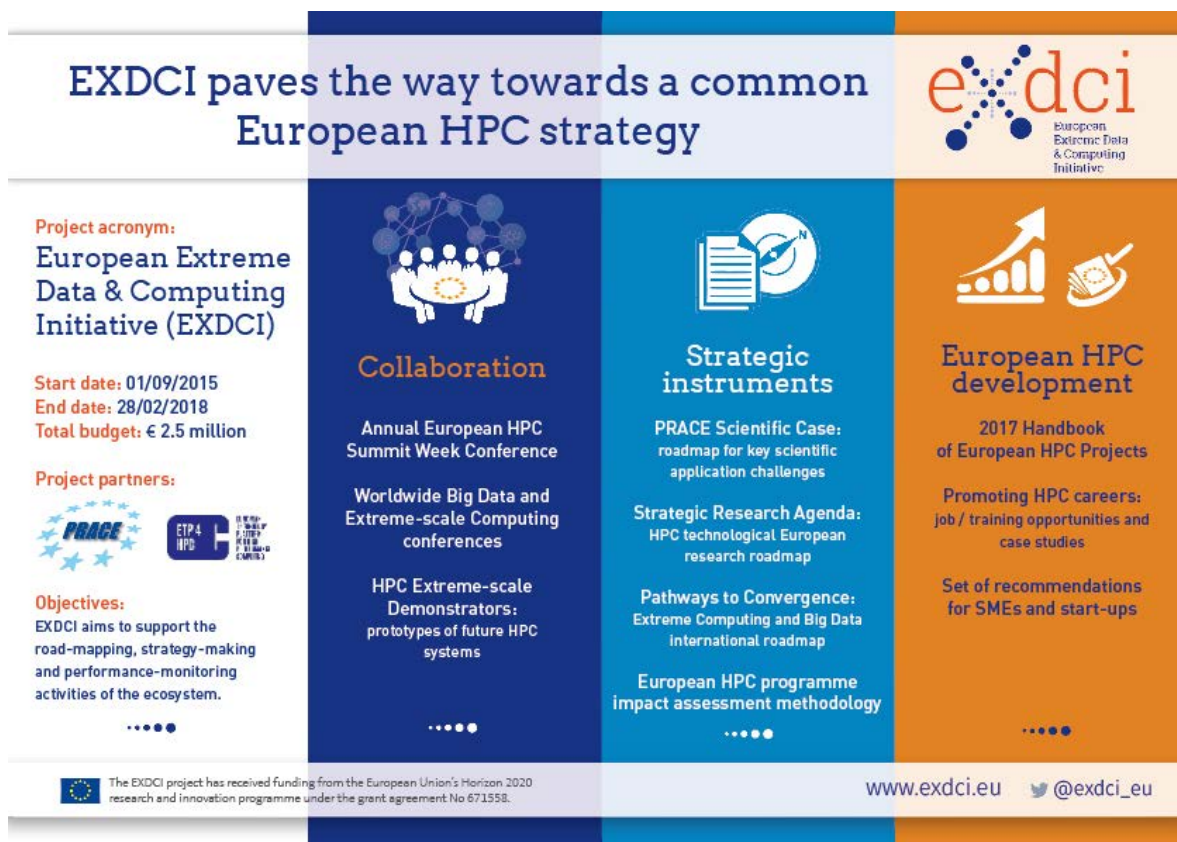# EXDCI paves the way towards a common European HPC strategy

The European project titled *European eXtreme Data and Computing Initiative* (EXDCI) presented its results after its three years of duration. Concluding in 2018, EXDCI has significantly contributed to the development and implementation of a common strategy for the European HPC ecosystem. The project outcome can be split into three major pillars: collaboration, strategic instruments, and the development of the European HPC ecosystem.

"EXDCI has clearly helped to reinforce an HPC ecosystem for Europe to be part of the future growth of the European science and economy. In the last call for Collaboration Support Actions (CSA) of the European Commission, we applied for a continuation of this project for three additional years", says Sergi Girona, EXDCI project coordinator.

EXDCI in three main pillars: international collaboration, European strategic instruments, and European HPC ecosystem development

As shown in the image below, the project summarizes its major achievements in three main pillars:

In the first pillar "international collaboration", the main outcomes can be summarized as follows:

- **European HPC Summit Week conference series**: EXDCI coordinates the annual European HPC Summit Week (EHPCSW) the aim of which is to gather all related European HPC stakeholders (institutions, service providers, users, communities, vendors and consultants)

in a single week to foster synergies. Each year, EXDCI opens a call for workshops to all HPC-related actors who would like to participate in the week with a workshop. The event offers ample opportunities to network with all relevant European HPC stakeholders, from technology suppliers and HPC infrastructures to HPC scientific and industrial users in Europe. The next edition of the EHPCSW2018 will take place from 28 May to 1 June 2018 in Ljubljana, Slovenia.

- **International collaboration**: EXDCI has participated actively in Big Data and Extreme-scale Computing conferences with established international collaborations such as Big Data Value Association and European Open Science Cloud. EXDCI also presented the European HPC eco-system at the annual Supercomputing Conferences in the US.
- **Extreme-Scale Demonstrators**: Five workshops have been held involving various HPC and Big Data stakeholders in order to define the concept of "Extreme-Scale Demonstrators" (EsDs). The EsDs are prototypes of European exa-scale HPC built out of the results of H2020 and FP7 HPC technology projects.

In terms of HPC strategy, EXDCI has also contributed with three main strategic instruments:

- **PRACE Scientific Case,** edition 2018: EXDCI has helped PRACE to issue a third version of the PRACE Scientific Case in 2018, the pan-European HPC research infrastructure, to deploy (pre) Exascale systems and to shape new HPC and data services.
- **Strategic Research Agenda:** This document is the European HPC technology roadmap towards exa-scale capabilities, maintained by ETP4HPC. In the EXDCI project, two editions have been published as a result of a collaborative process engaging EXDCI members and external HPC stakeholders. SRA 3 (the second full edition) was issued in November 2017 and it covers the remaining part of the Horizon 2020 HPC technology work programme. Apart from the traditional focus on basic HPC technologies, it places an emphasis on Extreme-Scale Demonstrators (above) and the integration of HPC and Big Data.
- **Pathways to convergence**: EXDCI has been actively promoting international collaboration with other international members of the HPC ecosystem via the BDEC initiative, among others. The result is a new international roadmap called "Pathways to Convergence" presented at the SC'17 conference, Denver, USA.
- **Analysis of the ecosystem**: EXDCI has set up and implemented an impact assessment methodology applied to the EU HPC ecosystem progress monitoring by contributing to the HPC Public Private Partnership (cPPP) mid-term review and assessment in 2017.

In the last pillar, EXDCI has contributed in the development of the European HPC ecosystem:

- **European HPC Handbook**: ETP4HPC maintains a Handbook of European HPC Projects. This publication details the HPC Technology and Applications Projects within the European HPC ecosystem. It was distributed at the European HPC SC17 Birds-of-a-Feather Session in Denver, Texas. The Handbook will be continuously updated as new projects are set up.
- **Talent generation**: EXDCI has worked to address the shortage of HPC-skilled staff in the European workforce. The HPC Careers Case Studies feature the personal stories of enthusiastic HPC experts.

- **SME and start-up recommendations**: EXDCI has gathered all stakeholders (HPC center, start-ups, SME, Constructors, etc.) to issue a set of very concrete recommendations to help SME growth and encourage new emerging startups.

All the above-mentioned results summarize that EXDCI has significantly contributed to increase the European competitiveness in the global HPC ecosystem. A continuation of the project for three additional years has been recently called for negotiation. With a total budget of 2.4€mio, this second phase aims to continue the coordination of the HPC ecosystem with important enhancements to better address the convergence of big data, cloud and HPC. This second phase will have the following two objectives: the development and advocacy of a competitive European HPC Exascale Strategy and the coordination of the stakeholder community for European HPC at the Exascale.

About EXDCI

The project titled *European eXtreme Data and Computing Initiative* (EXDCI) aims to coordinate the development and implementation of a common strategy for the European HPC ecosystem. Started in October 2015, this initiative is managed by PRACE and ETP4HPC. The idea of EXDCI is to gather in various activities such as events or workshops the different collaboration among the key players in the HPC ecosystem: the Centres of Excellence (CoEs) and the FETHPC projects.