Executive Summary

It is essential for WP3 to stay in contact with the various players/users in/of the European HPC infrastructure. For that, several brainstorming/data gathering activities have been carried out, which are summarized in this deliverable. Contacts have been initiated with a number of scientists in various fields likely to be either impacted by new High Performance Computing (HPC)/High Performance Data Analytics (HPDA) technologies or at the origin of new applications. Among them: representatives of European Centres of excellence (CoEs), scientists involved in relevant Future and Emerging Technologies (FET) projects, international researchers active in a variety of other domains like nuclear fusion, artificial intelligence, social sciences, etc.

WP3 experts are also collaborating with Work Package 2 (WP2) in the process of updating the SRA-4 (fourth version of the Strategic Research Agenda) by providing inputs from applications research communities coming from academia and industry. The SRA-4 will be issued at the end of 2019 and be delivered for the first time to the EuroHPC Joint Undertaking. The SRA-4 will involve ETP4HPC (European Technology Platform for High Performance Computing, [3]) for the hardware and software HPC industries, BDVA (Big Data Value Association, [6]) for the Big Data applications, AIOTI (Alliance for Internet of Things Innovation, [4]) for the IoT/AI applications and CoE / Partnership for Advanced Computing in Europe (PRACE, [2]) Scientific Steering Committee (SSC) for the scientific and industrial HPC applications.

Also, during the last 3 BDEC (Big Data and Extreme-scale Computing, [5]) meetings in Indiana (USA, November 2018), Kobe (Japan, February 2019), and Poznan (Poland, May 2019) experts from WP3 presented or were involved in several application use case presentations including data analytics in climate research, digital transition of Material Nano-Characterization and end-to-end workflow supports in earth sciences. Such international meetings were also the opportunity to exchange with applications experts from other continents including those from the DoE's Exascale Computing Project (ECP) who launched in early 2019 a new center of co-design toward Artificial Intelligence (AI) called ExaLearn aiming to bridge scalable AI and the massive amount of data generated by DoE's numerical simulations and large-scale scientific instruments.

Information with respect to industry has been collected during a joint workshop involving the PRACE Industrial Advisory Committee and the EuroHPC Infrastructure Advisory Group held on 3rd June 2019. This will be specified during the NAFEMS World Congress 2019, where activities are planned.

As next actions, more regular internal EXDCI communication channels to WP2 and WP4 will be established to synchronize energy. In agreement with this, the International Supercomputing Conference (ISC) 2019 in Frankfurt will be used to discuss current developments with various players/users in/of the European HPC infrastructure. Furthermore, the collaboration with the BDEC Application Group will be intensified.