**Project Title**: High-Performance Modelling and Simulation for Big Data Applications (cHiPSet)

**Project Webpage**: www.chipset-cost.eu

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**Abstract**: The Big Data era poses challenges and opportunities in High-Performance Computing (HPC). One of the key challenges is how to efficiently turn massively large data into valuable information and meaningful knowledge. Computationally effective HPC is required in a rapidly increasing number of data-intensive domains, such as life and physical sciences, or socio-technical systems. Modeling and Simulation (M&S) communities may lack the advanced expertise required to exploit the full potential of HPC solutions, and HPC architects may not be fully aware of specific M&S requirements. Therefore, there is an urgent need for European co-ordination to facilitate interactions among data-intensive M&S and HPC experts, ensuring that the field, which is strategic and of long-standing interest in Europe, develops efficiently: from academic research to industrial practice. CHIPSET provides the integration to foster a novel, coordinated Big Data endeavor supported by HPC. It strongly supports information exchange, synergy and coordination of activities among leading European research groups and top global partner institutions. CHIPSET is structured in four working groups that address corresponding topics: (1) Enabling Infrastructures and Middleware for Big-Data Modelling and Simulation, (2) Parallel Programming Models for Big-Data Modelling and Simulation, (3) HPC-enabled Modelling for Life Sciences, and (4) HPC-enabled Modelling for Socio-Economical and Physical Sciences.

**The EU framework**: European Cooperation in Science and Technology (COST) is a European framework for trans-national cooperation among scientists, engineers and scholars in Europe. COST, which is supported by the EU Framework Programme Horizon 2020, also aims at increasing the mobility of researchers across Europe.

**cHiPSet objectives**:

- Build an effective, durable and active European Research Community
- Expand the Action’s activities
- Foster the formation of new multi-disciplinary expertise of competent researchers exploiting HPC-enabled Modelling and Simulation (MS), and contribute, in particular, to the formation of the new generations of such researchers;
- Disseminate obtained research results, identified best practices and developed prototype and supporting tools;
- Strengthen the collaboration with European companies in order to establish efficient technological transfer of the latest HPC-enabled MS techniques, methods, and tools, encouraging their industrial adoption; and,
- Establish the Action itself as a reference point of competence that can provide advisor support to industries and can offer informed expertise to policy makers in the strategic field of HPC-enabled MS

**cHiPSet in Numbers**:

cHiPSet Action IC1406 is a project within Horizon 2020 programme. It started at April 8, 2015 and will end at April 7, 2019. The consortium contains the representatives of 32 cost countries (the full list of COST countries from the consortium - http://chipset-cost.eu/index.php/parties/) – in total more than 80 European institu-
tions, 2 countries associated with COST (Russia and Belarus) and partners from 6 overseas institutions from China, USA and Australia.

The Chair of the Action IC1406

Prof Joanna KOŁODZIEJ