

## EcoSysTem Hub for the promotion of high performance computing cloud-based modelling and simulation services

**Region:** Catalonia (Spain) **Technology:** High Performance Computing (HPC)

The STIMULI hub provides access to HPC cloud resources in a collaborative model by the Internet with the aim to bring together the value chain actors and to promote collaborative R&D and innovation, and perform regional, national and international networking activities.

### What is Stimuli?

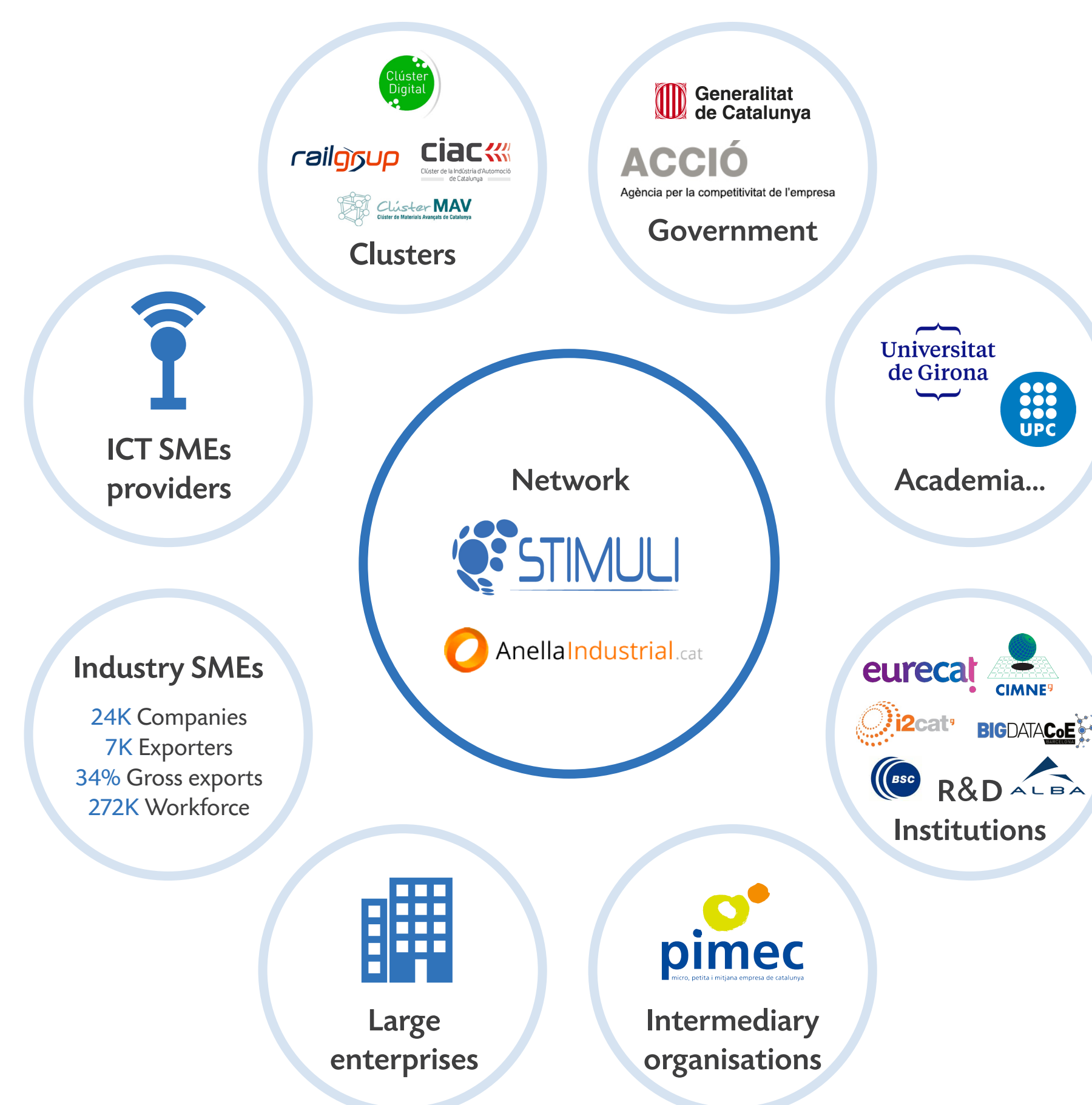
The STIMULI hub is conceived as an enabler for the use and uptake of HPC cloud-based simulation and modelling services for the increase of SMEs' competitiveness and regional growth.

The project is key for continuing the Catalan digitalisation in order to be more competitive.

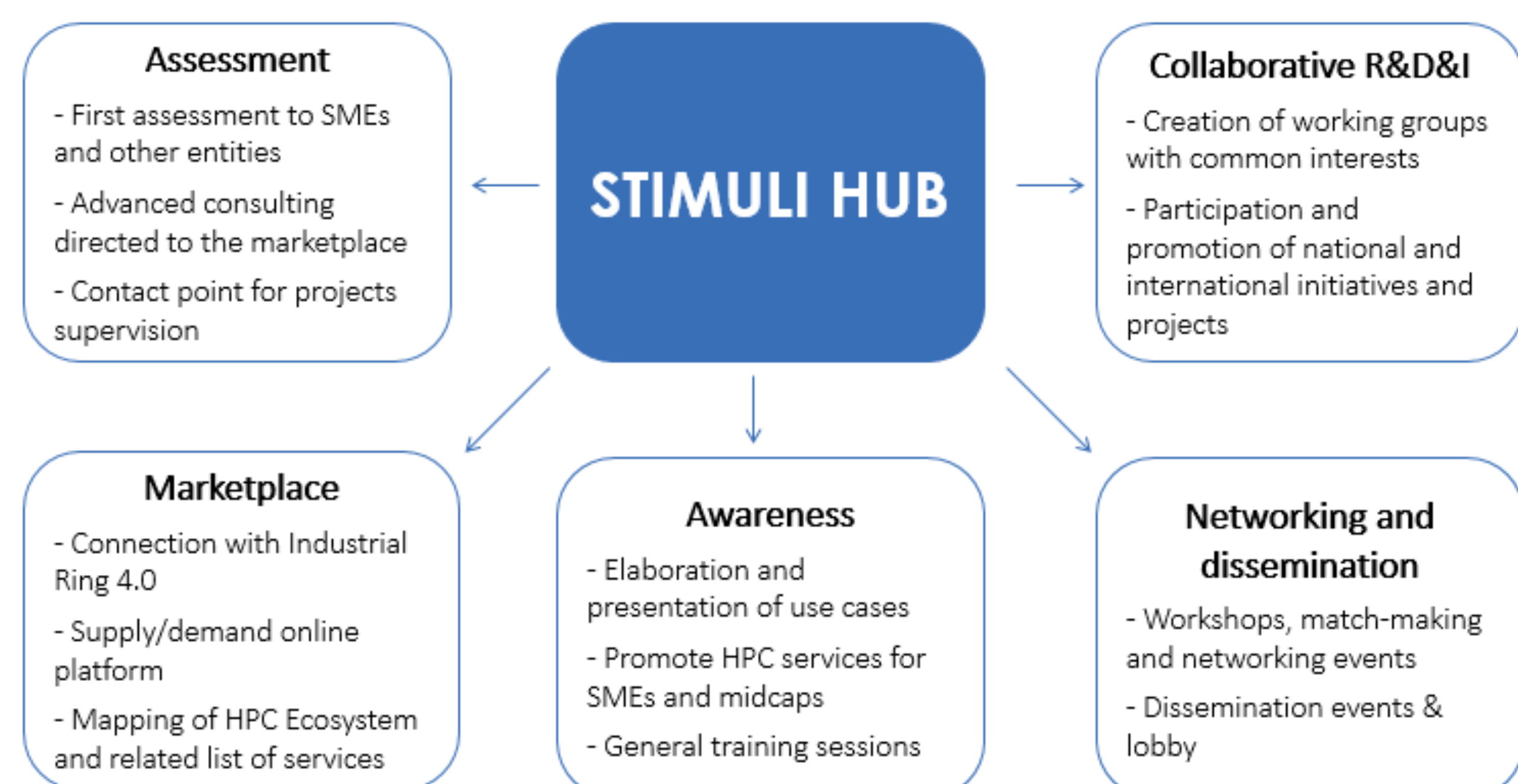
#### Stimuli's impacts

- › Increase of SMEs' and mid-caps' revenues
- › Reduction of energy consumption and carbon emissions
- › Creation of new direct and indirect high qualified jobs
- › Creation of new startups, new business models and companies
- › New products, services or patents that improve competitiveness of SMEs, mid-caps and the whole region
- › New business opportunities in the international arena
- › Participation in international technological cooperation programs
- › Increased participation in international initiatives and platforms

### Regional Innovation Ecosystem



### Services



### Use Cases

Focus on evidence of business benefits such as cost reduction, faster time to market, improved products, increased revenues, access to new markets, opportunity to grow staffing.

SME firefighting equipment manufacturer (FDD Engitec S.L.):

- **HPC – based for design of a fire extinguisher valve**
- Challenge: to calculate the pressure drop of a firefighting pressure regulated discharge valve for inert gas agent for the manufacturing of extinguishers .

SME agriculture machine manufacturer (Agrícola Solà S-L.):

- **Numerical simulation for machinery design**
- Challenge: Numerical simulation for the design of the current sowing machines to be integrated into a new precision agriculture equipment range.

SME incineration furnaces manufacturer (Teide Refractory Solutions S.L.):

- **Big data analytics applied to incineration furnaces**
- Challenge: Optimization in design and manufacturing and performance of incineration furnaces (Incineration of urban solid waste is a very complex process with large variability in the inputs and strong requirements on the output)

SME Engineering consultancy (BAC Engineering consultancy group):

- **Numerical simulation of accidental fires with a spillage of oil in large industrial buildings.**
- Challenge: Numeric simulations for fire engineering analysis of steel structure buildings (ITER nuclear fusion), some of them as complex as the combination of a liquid combustible spillage added to an oil cloud due to the breakage of a high pressure pipe.

### Partners



Project leader and responsible for the development of the feasibility plan. Eurecat has a global vision of the manufacturing industry and the ICT industry, and how to merge these two worlds. Eurecat supports companies in the implementation of advanced technologies in their way to Industry 4.0.



Responsible for the execution of the awareness-raising activities. I2CAT promotes R+D+i activities in Internet Technologies within the ICT industry.



Responsible for the definition and execution of the use cases. Pioneer supercomputing centre in Spain.

