

THIS IS THE BEGINNING OF THE EUROPEAN SUPERCOMPUTER

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One example: High-performance computing technologies allow us to simulate the effects of new medications, to diagnose and provide better treatment as well as to forecast future epidemics.

The data society and economy of today will be beneficial only to those companies and businesses that employ digital infrastructures, data processing and provide digital products and services. None of the giants in the area today – Google, Apple, Facebook, Amazon and Microsoft come from Europe. This is one of the reasons why having a common digital market is one of the European commission's priorities. This is also an argument in favour of why the European commission should establish an advanced digital infrastructure including state-of-the-art European supercomputers and super powerful and effective machines capable of processing big data and performing computations thousands of times faster than ordinary computers.

I hope that the European Union can achieve considerable advancements during the Bulgarian Presidency which puts digitization high in the priority list for the next six months.

Supercomputers are already enabling our society to make use of the latest advancements in healthcare, engineering, renewable energy sources, car safety, cyber security and other technologies.

The list of applications goes on and on and it is my pleasure to note that European citizens are already reaping the benefits. High-performance computing technologies allow us to simulate the potential effect of new medications, to diagnose more quickly and offer better treatment as well as to forecast future epidemics.

Slovenian doctors have been using high-performance technologies to considerably reduce the time needed to diagnose genetic diseases.

Tasks that used to take more than a month to complete now take just a few days and sometimes even a single day.

Supercomputers allow for a more thorough analysis of genetic material which has a decisive impacts on diagnosing patients with severe forms of epilepsy, sick newborns, fetuses in the womb as well as people suffering from rare diseases.

Supercomputers have also been actively used in climate change simulations, ocean research, weather forecasting as well as using Earth's resources.

Simulations of these kind find their applications in long-term climatic change forecasts or in developing adaptation strategies.

They also aid us in expanding our knowledge of geophysical processes and studying Earth's inner structure.

An international research team based in Italy, for example, has created a model of Earth's lithosphere which is based on extremely accurate resonance frequencies of seismic waves which helps them gain a better understanding of the earthquakes in the region.

I am convinced that such technologies can help us save hundreds of lives. Another example –automobile industry engineers have begun to optimize the standard design of vehicles in several stages. They can simulate a fully functional car by varying a large number of design parameters before even the first prototype is created. In this way high-performance computing technologies help car manufacturers reduce their costs, shorten their production design cycles so as to offer safer and more efficient vehicles on the market.

Currently car engineers are focusing on the smart mobility of the future – designing and producing automatically driven vehicles.

This sector is bound to become the biggest user of supercomputing services and the amount of data that each of these cars is going to exchange is huge - estimated at more than 4 TB - this is the same amount of data that can be put into 1000 DVDs.

Those are just a few examples showing the growing potential of supercomputers. And in response to the growing demand for data, high-performance technologies are already entering their next stage of development - from petascale to exascale.

This would mean having machines that are 10 times faster than the fastest ones on the planet today and hundred times faster than the fastest ones we have in the EU.

But not all the countries in the European Union have the capacity to develop and maintain such an infrastructure or to develop exascale technologies. And what is more Europe is losing its place in the high-performance capability rankings to China, USA and Japan.

Europe is not going to fulfil its ambition to have a strong digital economy without the aid of state of the art supercomputers. Europe can't afford to take the risk of sending the data obtained by European scientists and the industry somewhere else for processing due to a lack of supercomputing capability and capacity. This would increase our dependency on facilities in other countries and old foster the outflow of new developments away from Europe.

The European Union has a tremendous power when it makes unified effort. This is why the European commission and the member states signed the EuroHPC declaration in Rome on 23 March 2017. On that day seven member states signed the declaration and stated their support for creating the next generation of computation technologies and digital infrastructures. Since then six more countries joined the declaration. Thus 13 countries altogether – France, Germany, Italy, Luxemburg, Netherlands, Portugal, Spain, Belgium, Slovenia, Bulgaria, Switzerland, Greece and Croatia have joined their efforts to create a common European supercomputing infrastructure. Any other country is welcome to join the initiative.

Now we need to make the next step by attracting more investments in order to establish a leading European supercomputing infrastructure.

The European commission has proposed a new legal and financial structure - the common endeavour EuroHPC which is to design, acquire and deploy state of the art supercomputers all over Europe.

The European Union's contribution so far amounts to €486 million as laid down in the current long-term financial framework. The funds will be complemented with a comparable sum coming from the member states. Our expectation is to have around €1 billion of public investments by 2020..

The European supercomputing infrastructure presents a strategic resource for the future of industries in the European Union as it is already becoming more digitized and more competitive. It is also a potential source of a huge number of new positions on the labour market. There are many small and medium enterprises that need simulation services to do their business. For many, if not all of them, the cost of owning in maintaining such facilities is too high. And the role of the European Union in all this is to support their creativity, new developments and competitiveness.