



easyHPC@eco.plastics.WCG

An open High-Performance Computing ecosystem for
the ecological transformation and the advancement of the Plastics Industry
in the Regions of West and Central Greece



THE PLASTIC PROBLEM



4.8 million

The number of tourists who travelled to Cambodia in 2015, with an average stay of 6.8 days



10 million

The potential number of half-litre plastic bottles used by tourists in Cambodia in just one month



2

The average litres of water consumed by a tourist in Cambodia each day

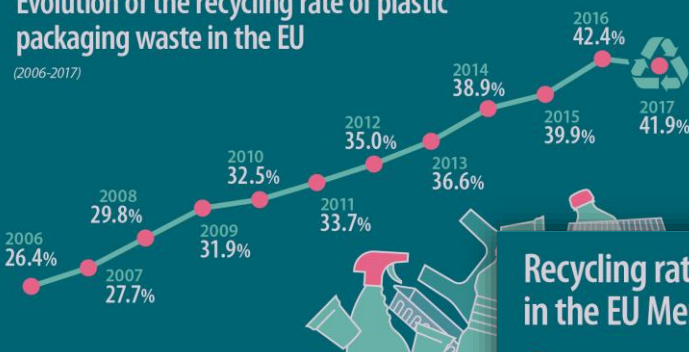


26

The number of Olympic swimming pools such bottles would fill in just one year

Evolution of the recycling rate of plastic packaging waste in the EU (2006-2017)

(2006-2017)



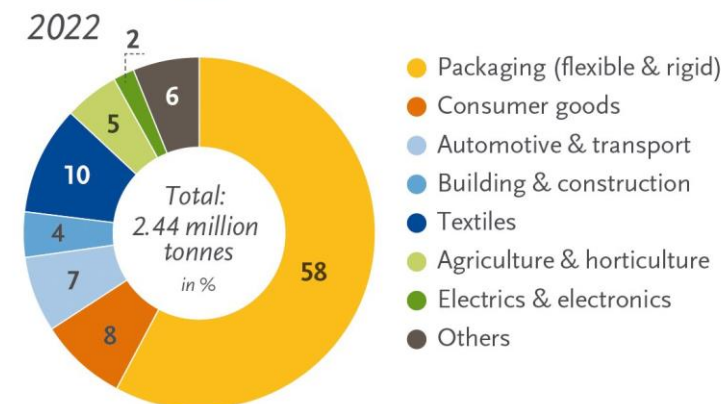
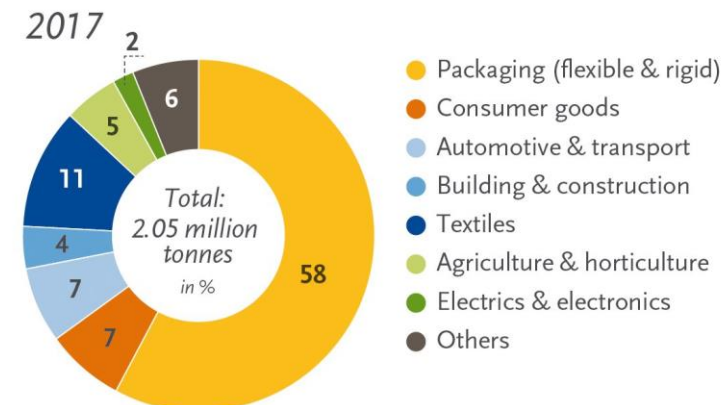
Recycling rate of plastic packaging waste in the EU Member States (2017 data)



* 2016 data instead of 2017

ec.europa.eu/eurostat

Global production capacities of bioplastics (by market segment)



Source: European Bioplastics, nova-Institute (2017). More information: www.bio-based.eu/markets and www.european-bioplastics.org/market



EDIH
GEARING UP TOWARDS
**EUROPEAN DIGITAL
INNOVATION HUBS**
ONLINE CONFERENCE

#EDIH2021

A (little bit of) HISTORY OF DIHs

*"A Digital Innovation Hub is a one-stop-shop that supports companies and the public sector in their digital transformation. Apart from technological expertise, **they have to be excellent in talking the language of their clients**, understanding their needs, translating them to practical solutions and creating ecosystems. They also provide training courses and are intermediaries for access to finance."*

TEST BEFORE
INVEST



SUPPORT TO
FIND
INVESTMENT



STAM
MASTERING EXCELLENCE

 **innomine**

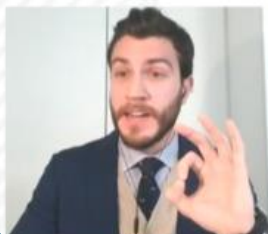
SKILLS AND
TRAINING



INNOVATION
ECOSYSTEM
AND
NETWORKING



DIH



DIGITAL INNOVATION HUBS

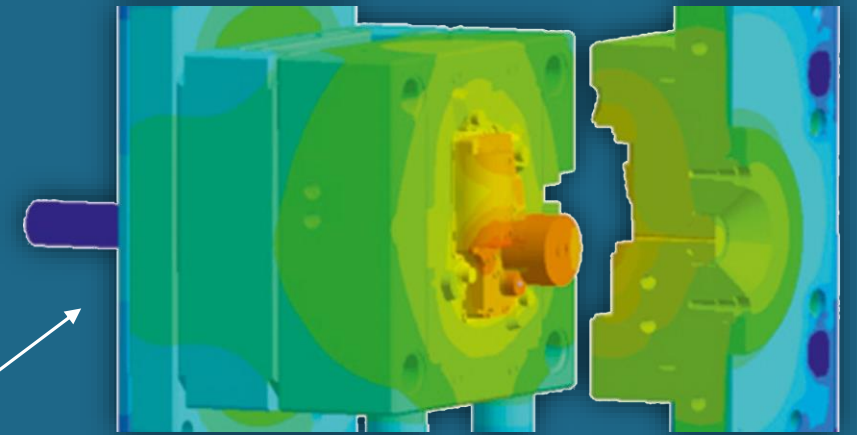
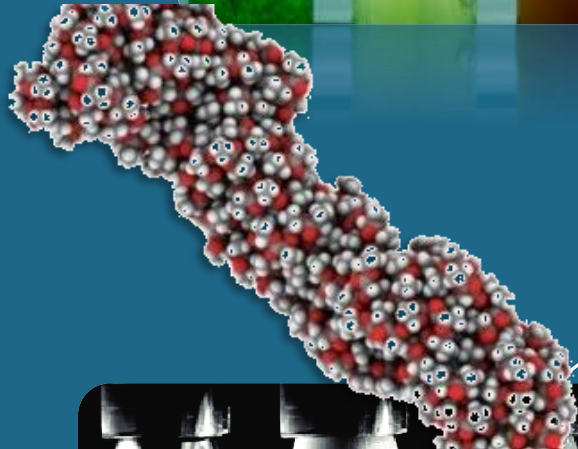
The easyHPC@eco.plastics.industry.WCG Hub is a candidate Greek Digital Innovation Hub, aiming to the ecological transformation and the enhancement of the Greek plastics and packaging industries via the adoption of digital innovation practices

Its fundamental idea is the adjustment of infrastructure, high scientific and technological training, advanced knowledge, and pioneering algorithms developed by leading Greek Research Laboratories, both in the field of Multiprocessing and Process Simulation at the Molecular, Mesoscopic, and Macroscopic level, as well as in the area of high-performance computing and educational software, in a management-friendly, growth and innovation environment. The aim is to bridge the gap between the daily necessity and practice in the production of plastics, a sector which is the most active not only in Western and Central Greece, but also the entire Country, and the high level of knowledge and techniques used at a computational level, as well as to promote the harmonization of the local industry with the current European environmental protection policy by advancing the use of new biodegradable materials, which unfortunately cannot be easily manufactured using the standard forming processes.

PLASTICS → CHALLENGES

NEW MATERIALS → MORE CHALLENGES

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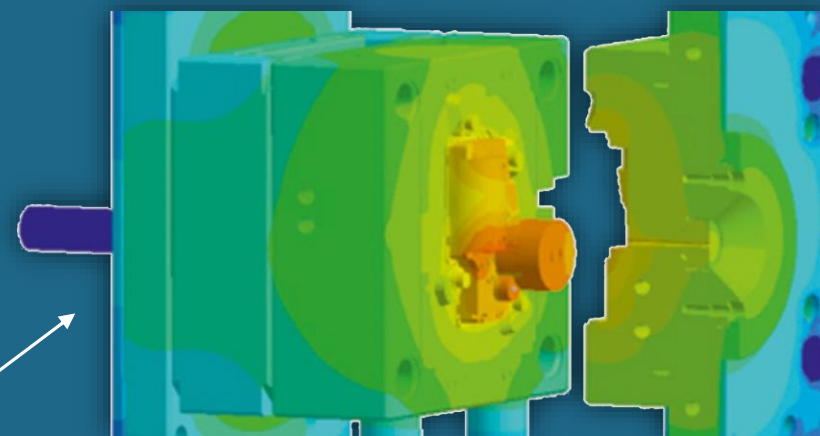
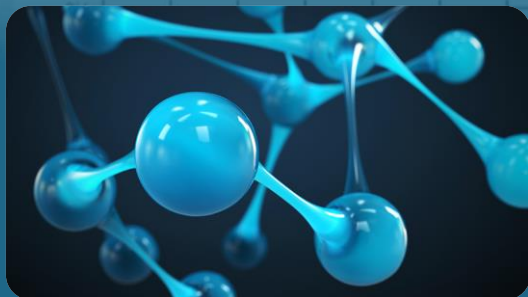
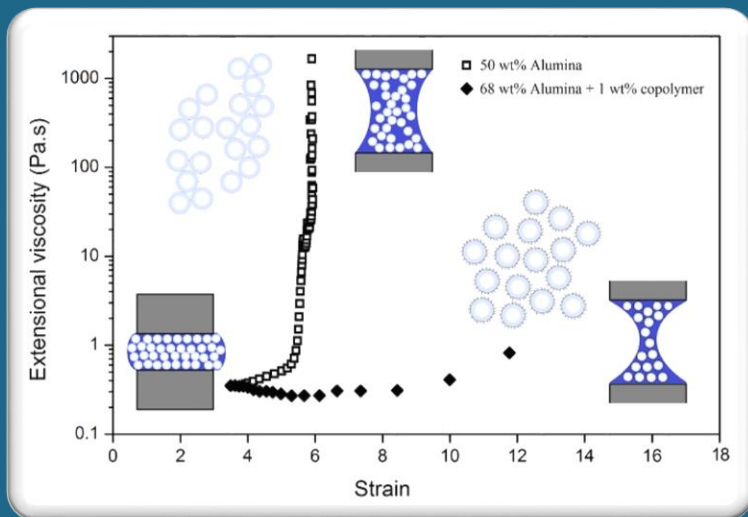


EASYHPC BASIC SCIENTIFIC STRATEGIES

FROM 0D TO 4D

FROM MOLECULES TO PROCESSES

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INNOVATIVE METHODS INTO PRACTICE

DIGITAL INNOVATION HUBS

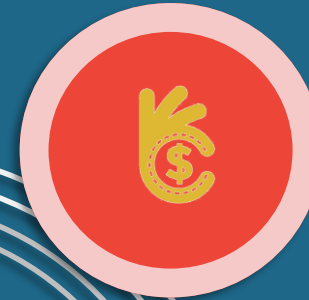
By far, the Consortium owns the most complete and high-end computer equipment infrastructure in Western and Central Greece, considerably alleviating the significant disadvantage of the region regarding the lack of usable computing resources, which are related to decreased competitiveness and, subsequently, higher unemployment of highly skilled people.

In consistency with the European Research Policy and the principles for the development of European Hubs, easyHPC@eco.plastics.industry.WCG aims to develop of an open, human and technology-driven ecosystem that will operate in a coordinated manner towards the advancement of scientific knowledge, its dissemination in an affordable and straightforward way, while focusing on the training of company executives and engineers, and on the implementation of innovative solutions for SMEs in the production of plastics based on synthetic and biodegradable polymers

Test of
Software
and
Hardware
Before
Invest



Support to
find
investment



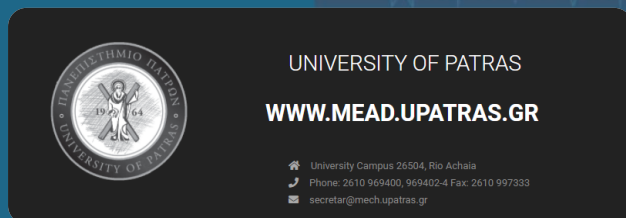
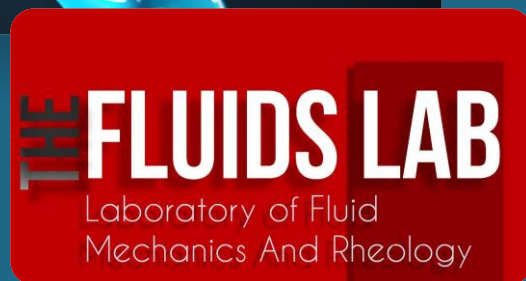
Skills and
Training in
HPC and
Simulation
of Forming
Processes



Innovative
Ecosystem
and European
Networking
in Simulation
of Plastics



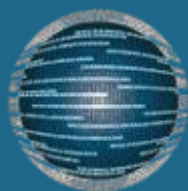
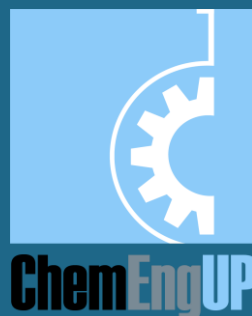
easyHPC



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ECEDU



High
Performance
Information
Systems
Laboratory



The activities of the Hub will start from the design stage to the final production stage, with the primary goal being the design of improved products, with a view to enhancing their competitiveness. The Hub is based on the interdisciplinary approach to this goal and involves Laboratories and Research Teams from different Scientific Fields and Departments: The Department of Chemical Engineering, the Department of Computer Engineering and Informatics, the ECEDU, the Department of Mechanical and Aeronautical Engineering as well as the Association of Materials Production & Packaging Industries (<https://www.pac.gr/>). The Hub also includes experimental laboratories of international scope, to utilize, during simulations, the real properties of the raw materials used by each industrial unit. All participants have international distinctions and constant interaction with European Companies in the Area.

Computational Rheology



**Yannis
Dimakopoulos**

Associate Professor
Department of Chemical
Engineering
University of Patras

EDIH Coordinator

<http://fluidslab.chemeng.upatras.gr/>

Polymer Processing & Fluid Mechanics



**John
Tsamopoulos**

Professor and
Director
of the Laboratory of
Fluid Mechanics and
Rheology,
Department of
Chemical Engineering
University of Patras

EDIH Vice Coordinator

Packaging Industries



**Dimitris
Mandis**

President of the
Association of
the Greek
Manufacturers of
Packaging &
Materials
(AGMPM), Greece

<https://www.pac.gr/>

Molecular simulations



**Vlasios
Mavrantzas**

Professor,
Department of
Chemical
Engineering,
University of Patras,
Greece

ETHz, Switzerland

<http://lstm.chemeng.upatras.gr/>
<https://mavt.ethz.ch/the-department/people/person-detail.NDYzOTE=.TGIzdc81NTksLTY5MzYxOTMw.html>

Solid Mechanics – Experiments & Simulation



**Dimitrios
Saravanos**

Professor and Director
of the Structural
Mechanics and Smart
Materials Group,
Applied Mechanics Lab,
Dept of Mechanical
Engineering and
Aeronautics,
University of Patras

<http://saam.mech.upatras.gr/index.php/14-group-pages/personnel/18-dimitris-saravanos.html>

High Performance Computing



**Efstratios
Gallopoulos**

Professor and Department
Chair Director,
High Performance
Information Systems
Laboratory,
Software Division,
Department of Computer
Engineering & Informatics
University of Patras

<http://scgroup.hpclab.ceid.upatras.gr/faculty/stratis/stratise.html>

Educational & User-Friendly Software



**Nikolaos
Tselios**

Associate Professor,
ECEDU
University of Patras,
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<http://tselios.weebly.com/>

Air Quality



Spyros Pandis

Professor,
Department of
Chemical
Engineering,
University of Patras,
Greece

Carnegie Mellon
University, USA

<http://cstacc.iceht.forth.gr/people/spyros-pandis>

<https://www.cmu.edu/epp/people/faculty/spyros-pandis.html.html>

Polymer Science



Georgios Pasparakis

Professor and Director
of the Laboratory of
Polymers,
Department of Chemical
Engineering
University of Patras

<https://www.polylab.gr/>

Supporters - Organizations

easyHPC@eco.plastics.WCG



<https://www.plasticsrecyclers.eu/>



<https://www.pac.gr/?lang=en>



<https://www.ahpi.gr/v>

Supporters - Companies

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<https://www.kotronis.gr/en/>



<https://www.plastikakritis.com/en>



<https://www.pipelife.com/>



<https://www.mo.gr/en/plastic-packaging/>

Supporters - Companies

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<https://k-kanellakis.gr/en/homepage/>

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