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Few European countries can claim to have contributed more to science than Greece, where innovation in the natural sciences, medicine, mathematics, philosophy and politics has a deep and rich tradition going back thousands of years. The legacy of that tradition can still be seen today in a range of innovative projects being conducted by Greek researchers.

More than two and half millennia ago, Thales of Miletus sought to explain the physical world in terms of the natural rather than the supernatural, earning him the title of the father of science. Centuries later Aristotle and his student Theophrastus classified and named plants and animals, laying the foundations for botany. Hippocrates, meanwhile, is considered the father of Western medicine.

The contributions of these ancient Greek thinkers and visionaries, and many others from Pythagoras to Pliny, have touched virtually every area of science. Greece's contribution to politics and systems of government has been no less impressive. Perhaps therefore it is not surprising that today, amid economic and political crises across Europe, Greek researchers are looking to combine those two traditions.

Teams at the University of the Aegean are currently working on ways to use the internet, and so-called web 2.0 technologies in particular, to help political decision-makers better understand what citizens want and how they feel about the political agenda.

In the [Nomad](#) [1] (1) initiative, which also includes three other Greek partners including the Greek parliament, the researchers are building tools to crawl blogging, social networking and media websites for user-generated content about public policy. Powerful analytical technology and processes are used to analyse the crowd-sourced data and automatically provide it to policy-makers. Armed with an accurate summary of public sentiment on different issues from their constituents, policy-makers should be able to better match policy goals to public demands.

'Modern politicians could test, detect and understand how citizens perceive their own political agendas, and also stimulate the emergence of discussions and contributions on the informal web so as to gather useful feedback for immediate (re)action,' the Nomad team says. 'In this way, politicians can create a stable feedback loop between information gathered on the web and the definition of their political agendas based on this contribution.'

While Nomad focuses on helping policy-makers obtain information about public sentiment, another project called [Padgets](#) [2] (2) focuses on providing policy-makers with better methods of communication with the public. Also coordinated by the University of the Aegean and involving companies such as Google in the United Kingdom and Fraunhofer in Germany, the project is developing a system to turn public policy proposals and measures into web applications. These so-called Policy Gadgets, or Padgets, are designed to be used in relation to underlying web content and social activities, allowing policy-makers to spread a uniform multimedia message easily across multiple media and new media channels and receive direct feedback from many different users. The ultimate goal is to enable more effective direct communication between policy makers and the public.

At the National Technical University of Athens, meanwhile, researchers are focusing on another issue important to governments and societies everywhere: conflict resolution. The team behind the [Siren](#) [3] (3) initiative are taking advantage of recent advances in serious games, social networks, computational intelligence and emotional modelling to create uniquely motivating and educating games that can help shape how children think about and handle conflict.

The Siren software will enable teachers across Europe to easily develop conflict scenarios that match the cultural background, age and technical expertise of their students, with the aim of improving conflict resolution skills among young people, and in the long term, society at large.

While those three projects reflect, at least in part, Greece's long-standing contribution to political systems, public policy and forms of government, others are more closely tied to the country's scientific tradition.

Echoing Eratosthenes

For example, [Teleios](#) [4] (4), coordinated by National and Kapodistrian University Of Athens, has echoes of the work of Eratosthenes of Alexandria, the first person to measure the Earth's circumference.

The Teleios team, however, are doing much more than mathematics and geography. They are focused on solving the large and growing problem of managing and using Earth observation data - the several terabytes of data sent every day by satellites to organisations such as NASA and the ESA. The project, which also involves the National Observatory of Athens and partners in Germany, Italy and the Netherlands, is setting up a virtual observatory infrastructure for Earth observation data so data can be accessed, organised and used more effectively for a range of applications, from climate monitoring to detecting wildfires.

Also dealing with large volumes of data is the [I-Search](#) [5] (5) project, coordinated by the Centre for Research and Technology Hellas and involving Google as a partner. The initiative is focused on developing the first search engine able to handle specific types of multimedia content, from text and 2D images to video and 3D content, as well as multimodal (such as facial expressions and eye movements) and real-world data (such as weather and location information). In addition, the search engine, based on a unique Rich Unified Content Description system, will also provide a very high degree of personalisation.

The Centre for Research and Technology Hellas is also involved in another far-reaching EU-funded project, [Noptilus](#) [6] (6), in which a team is working on developing 'Autonomous underwater vehicles' (AUVs). The project aims to develop and test an advanced AUV that will be fully autonomous, meaning there is no need for a human operator as is needed by most systems today. With a range of potential uses such as environmental monitoring and underwater mapping, prototype Noptilus AUVs

are to be tested off the coast of Portugal for round-the-clock monitoring.

Meanwhile, Greek company Systema Technologies is coordinating another pan-European initiative involving robotics research, albeit for very different aims. The goal of [Mobiserv](#) [7] (7) is to develop a service robot to support independent living, socialisation and communications among older people. One of the key features of the initiative is the team's focus on using the robot to provide healthcare services and emergency support by monitoring users' vital signs and environmental factors tied in with a smart home setting. The system is currently undergoing extensive field trials with end users.

'This research could have long-term benefits in supporting a growing elderly population. We need to look at these systems holistically in the context of real lives and ensure that the support they give to older people living independently matches their expectations and meets a real need,' explains Dr Praminda Caleb-Solly, who is leading the user experience research.

Connected with smart buildings research is the [Pebble](#) [8] (8) project. The initiative, coordinated by the Technical University of Crete, is focused on intelligent energy management for buildings that will make them 'energy positive' - i.e. they will produce more energy than they consume. 'The view taken by the Pebble system, along with the potential of most effectively and harmoniously utilising all available resources, makes it an ICT-based "enabler of energy efficiency",' the project team says.

The approach aims to maximise the net energy produced by buildings with renewable energy sources fitted. The system will use a combination of sensors, simulation of heat response within the building, and sophisticated control tools. According to the project team, 'with a reasonable installation of renewable sources, [the system] will help realise significant energy savings - reaching or even surpassing the target of 30 % reduction.'

The projects featured in this article have been supported by the Seventh Framework Programme (FP7) for research.

- (1) Nomad: Policy Formulation and Validation through non moderated crowdsourcing
- (2) Padgets: Policy Gadgets Mashing Underlying Group Knowledge in Web 2.0 Media
- (3) Siren: Social games for conflict REsolution based on natural iNteraction
- (4) Teleios: Virtual Observatory Infrastructure for Earth Observation Data
- (5) I-Search: A unified framework for multimodal content SEARCH
- (6) Noptilus: autoNomous, self-Learning, OPTimal and compLete Underwater Systems
- (7) Mobiserv: An integrated intelligent home environment for the provision of health, nutrition and mobility services to the elderly
- (8) Pebble: Positive-energy buildings thru better control decisions

Useful Links:

- [FP7 on CORDIS](#) [9]
- [Nomad on CORDIS](#) [10]
- [Padgets on CORDIS](#) [11]
- [Siren on CORDIS](#) [12]
- [Teleios on CORDIS](#) [13]
- [I-Search on CORDIS](#) [14]
- [Noptilus on CORDIS](#) [15]
- [Mobiserv on CORDIS](#) [16]
- [Pebble on CORDIS](#) [17]

Other Links:

- [European Commission's Digital Agenda website](#) [18]

Rapid Press Release:

Do Not Publish as Rapid Press Release

Source URL: <https://ec.europa.eu/digital-single-market/en/news/ancient-times-today-greeces-great-scientific-heritage>

Links

[1] <http://www.nomad-project.eu/>

[2] <http://www.padgets.eu/>

[3] <http://sirenproject.eu/>

[4] <http://www.earthobservatory.eu/>

[5] <http://www.isearch-project.eu/isearch/>

[6] <http://www.noutilus-fp7.eu/>

[7] <http://www.mobiserv.eu/>

[8] <http://www.pebble-fp7.eu/>

[9] http://cordis.europa.eu/fp7/home_en.html

[10] http://cordis.europa.eu/projects/rcn/102148_en.html

[11] http://cordis.europa.eu/projects/rcn/93840_en.html

[12] http://cordis.europa.eu/projects/rcn/95816_en.html

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[17] http://cordis.europa.eu/projects/rcn/93732_en.html

[18] https://ec.europa.eu/digital-single-market/en/../../digital-agenda/index_en.htm