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Digital Agenda 101: from supporting research to meeting social challenges

Published by Newsroom Editor on 19/09/2012



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This is the second part of ICT Features' 101st story, reflecting the stories and testimonies shared by the many EU-funded technology research projects so far. In so doing, we also pay homage to the number 101 and the 101 policy actions of the Digital Agenda for Europe (DAE).

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This is the second part of CORDIS ICT Features' 101st story, reflecting the stories and testimonies shared by the many EU-funded technology research projects so far. In so doing, we also pay homage to the number 101 and the 101 policy actions of the Digital Agenda for Europe (DAE).

The Digital Agenda for Europe and its 101 actions form a vital part of the overall Europe 2020 strategy for securing smart, sustainable and inclusive growth. The actions are organised in seven pillars, or 'containers': digital single market, interoperability and standards, trust and security, fast and ultra-fast internet access, research and innovation, digital literacy, skills and inclusion, and ICT-enabled benefits for EU society. In the previous part of this story we covered the digital single market, interoperability, security, and fast internet access. Next we look at ICT support for research...

Laws of attraction

'To attract Europe's best minds to research, world-class infrastructure and adequate funding are crucial. The best research ideas must be turned into marketable products and services,' notes the Commission on the 'research and innovation' pillar of the Digital Agenda. For example, Action 53 ensures sufficient financial support for joint ICT research infrastructures and innovation clusters, as well as supporting further development of e-infrastructures.

Here, projects like the 'Virtual multidisciplinary environments using cloud infrastructures' ([VENUS-C](#) [2]) are making sure that the thousands of scientists across Europe have access to powerful computing resources. VENUS-C has created an open, scalable and user-centred cloud computing infrastructure which puts all the computing power they need at their fingertips. 'Cloud computing empowers [the researchers] in a number of different ways, enabling them not only to do better science by accelerating discovery but also new science they could not have done before,' note the project team in our earlier story ['Bringing open, user-centric cloud infrastructure to research communities'](#) [3].

In a special feature on the 'Future and emerging technologies' (FET) research activities, we introduced a number of pilot projects which target truly grand challenges like health, ageing societies and the costs and quality of medicine. The 'IT future of medicine' (ITFoM) pilot project, for instance, harnesses the power of ICT and developments in data-rich biomedicine and '-omics' (high-throughput studies) to tackle this vast domain and deliver patient-specific treatments against major diseases like cancer.

'Huge advances in technology and data-driven medicine could see the vision of a "virtual patient" - a computer-driven anatomical replica - become a reality in the coming decade. This could speed up new drug development, cut unwanted side-effects, prevent the onset of diseases, and boost people's overall health and well-being,' we noted in the story ['Meet the pioneers of future and emerging technology'](#) [4].

In addition, the European Commission has argued that the results of publicly-funded EU research should remain in the public domain. It supports a model of open access scientific publishing and has funded the 'Open access infrastructure for research in Europe' ([Openaire](#) [5]) project to create a so-called 'information space' linking publications, data sets and funding information. It seeks to provide a single access point to all the open access publications produced during the course of public-funded projects (national and EC).

Action 56 urges Member States to engage in large-scale pilots financed by the competitiveness and innovation programme. In the first of our special feature series last year, entitled ['Going from e- to we-government'](#) [6], we look at some of the research and initiatives falling under Europe's ambitious plan to unlock the full potential of ICT to meet public demand for smarter, joined-up government e-services. Large-scale projects such as the 'Smart open services for European patients' ([epSOS](#) [7]) project is making it easier for people to receive medical assistance anywhere in the EU by removing linguistic, administrative and technical obstacles.

Turn on your e-skills

'Over 50 % of Europeans use the internet daily, but 30 % have never used it at all,' according to the Commission. People with disabilities and a disproportionate number of older people face difficulties in accessing new electronic content and services. As life becomes ever-more digital, there is a risk that this so-called 'digital divide' will widen unless action is taken to improve digital literacy by promoting long-term e-skills development and education. The Digital Agenda's 'Enhancing e-skills' pillar is tackling the digital divide and EU support for ICT research is a key part of the effort to promote 'new skills for new jobs'.

Researchers in the EU-funded 'Language technologies for lifelong learning' ([LTfLL](#) [8]) project, for example, have developed a range of intelligent support and advice services and 'natural language processing' (NLP) tools for individual and collaborative learning, to help reduce the workload on professors, save time and money and improve student performance.

In ['A qualitative leap forward in natural language processing for education'](#) [9], we reveal more about

the various applications of NLP (which melds linguistics and computer science) including software to convert text into speech, automatic translation between languages or mining data for specific concepts. The article explains LTfLL's contributions to the emerging field of 'learning analytics', the measurement, collection, analysis and reporting of data about learners and learning environments. This work supports several DAE Actions which prioritise digital literacy and competence.

ICT to tackle social challenges

The Digital Agenda focuses on how ICT can reduce energy consumption, support ageing citizens' lives, revolutionise health services and deliver better public services. 'ICTs can also drive forward the digitisation of Europe's cultural heritage providing online access for all,' notes the DAE website.

There are some 28 Actions that fall under the 'ICT for social challenges' pillar of the DAE, ranging from smart energy solutions, legislation and practices to measures and technologies for 'ambient assisted living' (AAL). ICT Features has covered many projects in this wide range, in particular how technology can help with elderly care and 'ageing well' initiatives. Our story ['Independent ageing: support from interdependent ICT'](#) [10] reveals new technology that monitors people's health, keeps their homes secure, and helps them stay fit and connected with family and friends. But the challenge is getting people, especially the elderly, to use these 'intelligent' systems. 'Overcoming barriers to the acceptance and usability of AAL systems through innovative user-centred design [is critical],' suggest researchers in the 'Service-orientated programmable smart environments for older Europeans' ([Soprano](#) [11]) project.

At the other end of the 'social challenges' spectrum, our story ['ICT is new weapon in the war on drug-resistant diseases'](#) [12] introduces a new data-mining, clinical monitoring and decision-support system developed by the 'Detecting and eliminating bacteria using information technologies' ([Debugit](#) [13]) project, which offers a powerful new weapon in the war on resistance to antibiotics.

Going international

In addition to the seven pillars and 101 Actions, the Digital Agenda also has an important international dimension with the aim of making Europe a powerhouse of smart, sustainable and inclusive growth on the world stage. Actions under this heading include promoting global internet governance and improving international trade conditions and intellectual property rights.

In our story ['Saving ecosystems with open data and e-infrastructure ecosystems'](#) [14] an international team of researchers backed by EU funding is developing a vital resource for cross-referencing the work of scientists all over the world. The 'Data infrastructures ecosystem for science' ([D4Science-II](#) [15]) project created an interoperable framework for e-infrastructures - a virtual research environment (VRE) - in which data, computing and software resources belonging to different e-infrastructures can be shared regardless of location, technology, format, language, protocol or workflow.

'We collect statistics on all sorts of fisheries from all sorts of countries and of a wide diversity of data qualities. D4Science helps us bring all this data together,' notes project partner Anton Ellenbroek of the FAO's Fisheries and Aquaculture Department in Rome. 'It's a really important infrastructure ... it allows us to analyse statistics in ways that were not possible before and we can easily share with other virtual research environments,' he told ICT Features.

We hope you enjoyed reading this 'greatest hits' of ICT Features past and welcome ideas for future special features.

Projects mentioned in this report are funded under various themes and actions of the EU's Framework Programme for research.

Links to projects' websites:

- [VENUS-C](#) [2]
- [epSOS](#) [7]
- [Peppol](#) [16]
- [LTfLL](#) [8]
- [CompanionAble](#) [17]
- [Soprano](#) [11]
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- [Going from e- to we-government](#) [6]
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[2] <http://www.venus-c.eu/Pages/Home.aspx>

[3] http://cordis.europa.eu/fetch?CALLER=OFFR_TM_EN&ACTION=D&DOC=38&CAT=OFFR&QUERY=01397cbf551d:bbafe2543f2a0&RCN=8520

[4] http://cordis.europa.eu/fetch?CALLER=OFFR_TM_EN&ACTION=D&DOC=14&CAT=OFFR&QUERY=01397cbb8510:5495:24eba2e8&RCN=7891

[5] <http://www.openaire.eu/>

[6] http://cordis.europa.eu/fetch?CALLER=OFFR_TM_EN&ACTION=D&DOC=3&CAT=OFFR&QUERY=01

397cb8ca95:7604:20762736&RCN=7405

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

[8] <http://www.ltfll-project.org/>

[9]

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[10]

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[11] <http://www.soprano-ip.org/>

[12]

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[13] <http://www.debugit.eu/>

[14]

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[15] <http://www.d4science.eu/>

[16] <http://www.peppol.eu/>

[17] <http://www.companionable.net/>

[18]

http://cordis.europa.eu/fetch?CALLER=OFFR_TM_EN&ACTION=D&DOC=2&CAT=OFFR&QUERY=01397cbe88a8:6db4:238bd0ef&RCN=8072

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http://cordis.europa.eu/fetch?CALLER=OFFR_TM_EN&ACTION=D&DOC=5&CAT=OFFR&QUERY=01397cbcfdb:e063:216d04e1&RCN=7690

[21] http://ec.europa.eu/digital-agenda/en/../../digital-agenda/index_en.htm

[22] <http://ec.europa.eu/digital-agenda/en/newsroom/all/projects-news-and-results>