[**ON-NS&T**]

Identification of suitable ICT solutions to support cognitive process dynamics, through research activities within a companies context and an Open Network for New Science And Technology

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Proposal abstract

The evolving penetration and impact of ICT use is widespread and important for the European knowledge based society's developmental strategy. However, the current level of digital training and the conditions of ICT interactivity still appear to be far from exploiting the full potential of these changes. Therefore ON-NS&T activity's project will be directed to enhance new understandings of the learning processes in a changing cognitive environment brought about by ICT, throught exploring the links between the neurology of human learning, advanced scientific cognition of the science of life and new ICT technologies and solutions. The ON-NS&T Consortium has widely acknowledged that cognition dynamics is intertwined with the ICT context, and is extremely sensitive to it. In fact the ICT environment has become a major component of the context within which cognition occurs. Technology's interaction with cognition is so extensive that perhaps it can even modify the brain's physiology of learning. Therefore the ON-NS&T research will be devoted to exploring the relationships between ICT innovation and the dynamics of the cognitive process, particularly of the new cognition-related technologies, as an important factor to be taken into account in the European Knowledge Society development.

The ON-NS&T project will explore the co-evolution between ICT and the cognitive process looking at the modifications of the working brain through studies of functional Magnetic Resonance. This study will be carried out in a way that will contribute to the development of "connective intelligence and management", the sharing of the scientific knowledge and resources and the enhancement of personalised e-learning innovation models and strategies for individual and organisations.

The analysis of mental processes - from a cognitive sciences and neurological point of view - of people involved in workplace and involved in learning activities, will give input and the necessary data to identify suitable strategies, methods and software tools that will support an effective enhancing of e-learning based on integrated knowledge. This aim will include the adaptation of existing technologies as well as the development of new solutions. The approach can be summarised with the acronym "Mental Ergonomics Integrated Research and Technology " (M.E.R.I.T), which includes the aim to drive technological choice through a knowledge of mental processes. These results will be achieved through an integrated consortium, that includes specific and complementary skills and expertise, to produce ICT based learning that is more effective, and so in turn will reinforce competitiveness, and solve particular societal problems.
To disseminate and enhance the cross sector fertilization of the ICT & Cognitive Research results there will be a collaborative working network of stakeholders through an innovative use of web-learning integrated systems. The research team, that will be set up by the ON-NS&T consortium, will carry out specific analysis, experimental testing and international consultation to achieve the following objectives:

- **To explore interactions** between the neurology of individual learning for enhancing innovative e-learning strategies and ICT solutions (mainstreaming to: education & training organisations; ICT companies).
- **To encourage cognitive trans-disciplinary research** and launching technological-enhanced learning innovations (mainstreaming to: universities, research centres; ICT companies).
- **To strengthen the integration** between cognitive and ICT advanced research and innovation in an enlarged Europe, enabling Science Editors to improve their competitiveness by the development and introduction of innovative e-learning products and technologies (mainstreaming to: science editors).
- **To reflect firstly about the challenges** posed by mainstream education, based on the advancement of the science of life in a mixed formal and informal learning settings. Secondly in the longer term to build on and advance the inter-relationship between neurological research advanced cognition and e-learning processes innovation, and to exploit links to other disciplines (mainstreaming to: education & training organisations; universities, research centres).
- **To improve cultural innovation** through pervasive dissemination of the processes of understanding the science of life, and opening a wider and faster "ICT" exchange of ideas in promising fields of bio-technology (mainstreaming to: education & training organisations; universities, research centres, ICT companies).
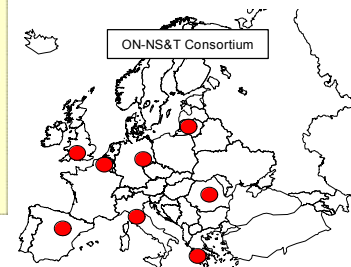
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Acronym**: ON-NS&T**
duration: 30 months
budget: 1.850.000 euro (EC contribution: 1.106.336 = 59,8%)
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