

Preventing gridlock -- developing next-generation Internet infrastructure

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To keep pace with society's ever increasing data-transmission requirements, a new project funded under the EU 7th Framework Programme, is set to develop the next generation internet infrastructure to enhance the capacity of broadband core networks providing increased bandwidth of 100 times current capacity.

The 11.8m Euro MODE-GAP project will seek to provide Europe with a lead in the development of next generation internet infrastructure. Combining the expertise of eight world-leading photonics partners, MODE-GAP will develop transmission technologies, based on specialist long-haul transmission fibres and associated enabling technologies such as novel rare-earth doped optical amplifiers, transmitter and receiver components and data processing techniques, to increase the capacity of broadband networks.

If successful, the MODE-GAP technology will have a significant impact in enabling 'future proof networks and systems' of 'increasing information throughput'. Without such a breakthrough, the internet of the future could be severely compromised.

Led by the University of Southampton's Optoelectronics Research Centre (ORC), this collaborative project brings together the expertise of leading industrial and academic organisations across Europe: Phoenix Photonics Ltd, ESPCI ParisTech, OFS Fitel Denmark APS, the COBRA Institute at Technische Universiteit Eindhoven, Eblana Photonics Ltd, [Nokia Siemens Networks](#) GMBH & Co. KG and the Tyndall National

Institute of University College Cork.

ORC Project Leader Professor David Richardson comments:

"We are close to realising the fundamental data carrying capacity limits of current fibre technology in the laboratory and although there is plenty of headroom for capacity scaling of commercial systems for the next 10-15 years, we need to be looking now at developing a new generation of transmission techniques, based on novel fibres and amplifiers, if we are to keep pace with society's ever increasing data transport demands in the longer term.

"The MODE-GAP project has the potential to revolutionise the way we build and operate future generations of optical network. Success will require substantial innovation and major technological developments in a number of fields. The consortium partners believe that they are ideally equipped to undertake the work and are looking forward to the many challenges ahead."

Bart Van Caenegem, Project Officer at the European Commission, comments: "A European consortium of highly qualified and talented researchers has teamed up and has adopted a ground-breaking approach in R&D to advance the transmission technologies that will enable the networks of the future. This EU-funded project contributes to the Digital Agenda objectives, namely it aims to improve the competitiveness of the European industry and it aims to enable Europe to master and shape future developments in information communication technology (ICT) so that it can meet the demands of its society and economy."

Provided by University of Southampton

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