

# NEWSLETTER

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PHOTONICS<sup>21</sup>

PHOTONICS PUBLIC PRIVATE PARTNERSHIP



## OCTAPUS

Optical Circuit switched Time sensitive network architecture for high-speed Passive optical networks and next generation Ultra-dynamic & reconfigurable central office environments

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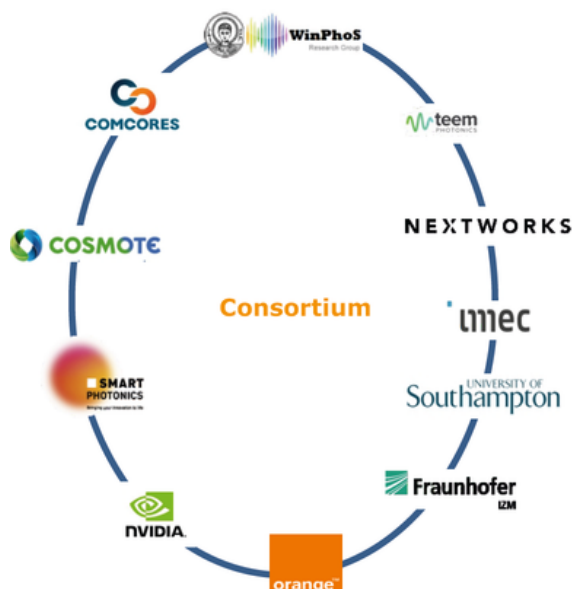
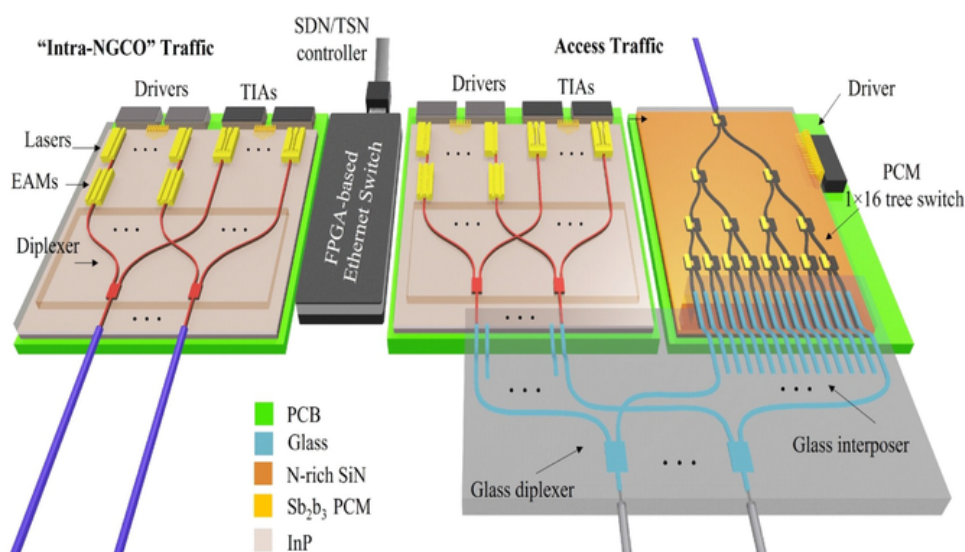
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## The OCTAPUS vision

To deliver an agile, low-cost and energy efficient PIC technology framework that will re-architect the NGCO (Next Generation Central Offices) ecosystem, transparently upgrading its capacity to 51.2Tb/s and beyond, through an innovative optically switched backplane and transceiver toolkit allowing three layers of traffic provisioning; i.e., optically switched express path time-sensitive & best-effort traffic classes.



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EU Contribution € 4,789,661.00

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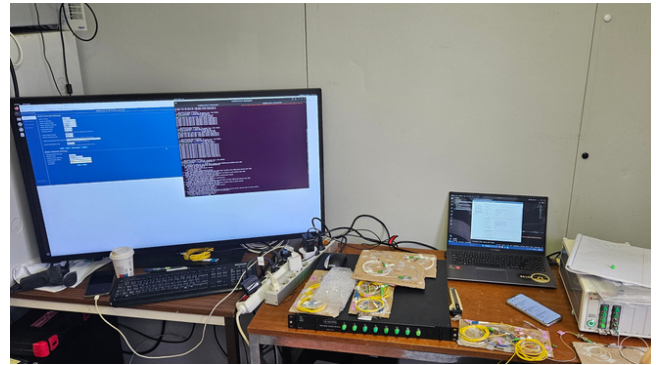
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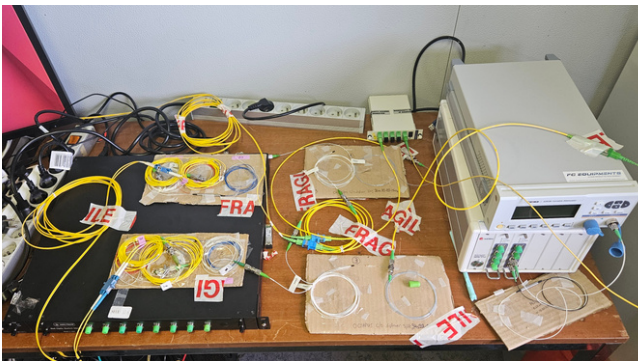
# Experimental Demonstration

## Real-Time Demonstration of the OCTAPUS Project

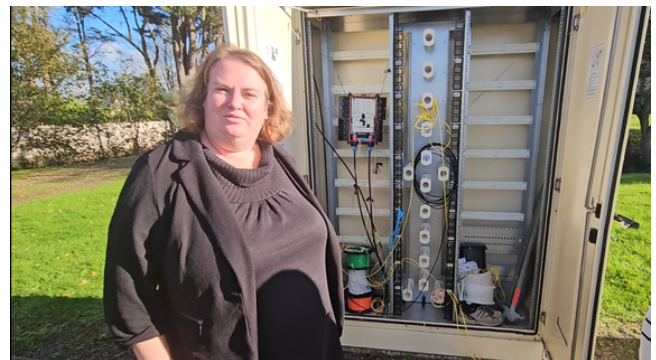
► An experimental demonstrator of the OCTAPUS concept was set-up during the 7th plenary meeting at the facilities of Orange in Lannion in France between 19-20 November 2025.



► The demonstrator included the integration of the OCTAPUS multi-band glass-based photonic components.

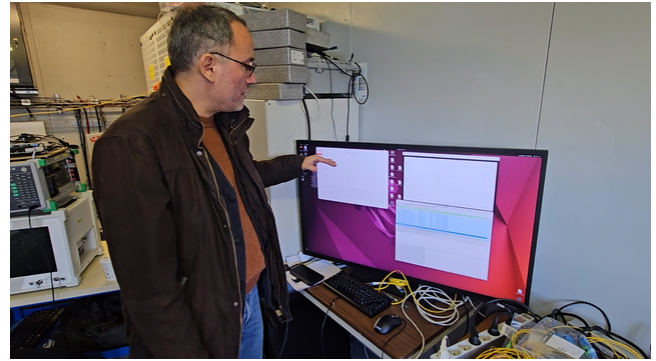


► The OCTAPUS technologies were integrated into a field-fiber of an in-service 50G Higher Speed Passive Optical Network (HS-PON).



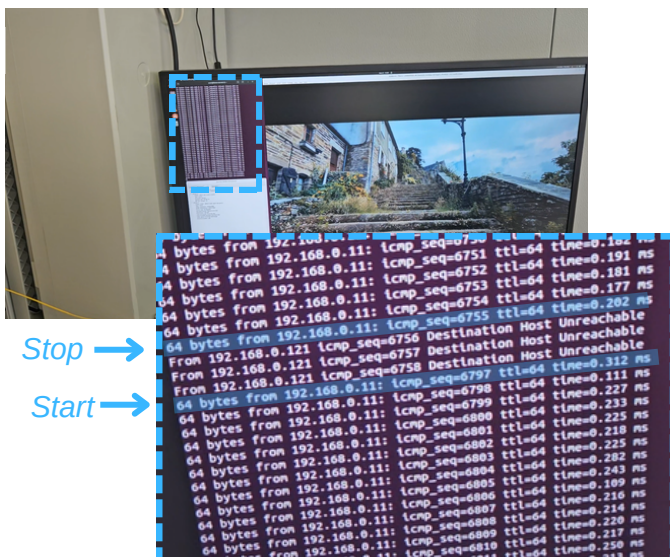
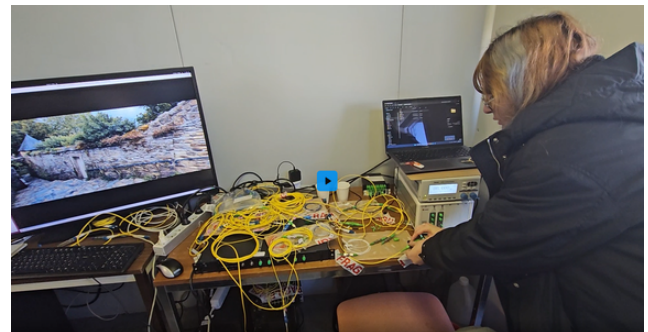
► Both C- and O-band traffic were simultaneously transmitted across 1.6 km of underground field deployed fiber.

- The parallel transport of different types of data, from standard internet services to Deterministic Time-Sensitive Network (TSN) traffic was demonstrated.



- The custom-developed FPGA-based OCTAPUS switch was implemented for TSN and Best Effort traffic.

- Live network traffic was monitored in real time to ensure stable data flow between the server and client devices.



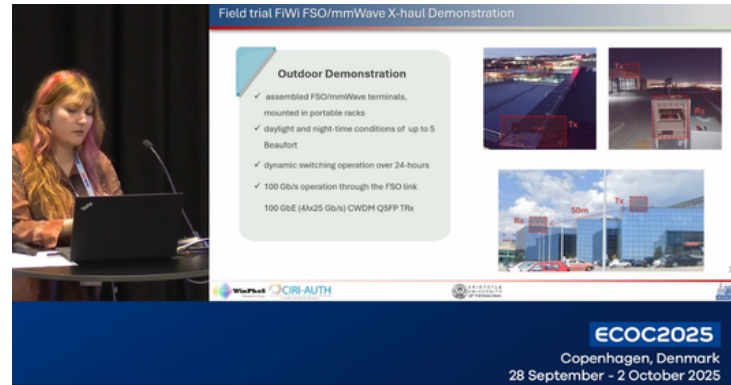
- A real-time high-definition 8K video transmission was setup between the endpoints of the OCTAPUS architecture with zero interruptions or quality loss.

## Dissemination activities

All dissemination activities can be found at the OCTAPUS [website](#) and [zenodo.org](#)

### PAST PRESENTATIONS

#### OCTAPUS at ECOC 2025



OCTAPUS had a strong presence in the European Conference on Optical Communications (ECOC 2025) taht took place in Copenhagen, Denmark between the 28<sup>th</sup> of September and 2<sup>nd</sup> of October 2025. The OCTAPUS project participated with a total of 7 contributions.

#### OCTAPUS at Athens INFOCOM World 2025 Conference



OCTAPUS participated in the Athens INFOCOM World 2025 Conference Expo: "AI-VOLUTION - A Brave New World" on November 26 2025. Ioanna Mesogiti from the consortium partner OTE represented the project with a poster describing its innovative architecture in the Science Section Workshop of the event.

## OCTAPUS at OFC 2026

OCTAPUS participated in the Optical Fiber Communication Conference (OFC 2026) that took place in Los Angeles, California, United States.



ORANGE and WinPhoS presented five papers titled:

- "PON Bitrate Optimization Adapting Flexible Header and FEC According to Field Data"
- "Improving 50G-PON Performances Exploiting Self-Phase Modulation and Chromatic Dispersion"
- "Real-Time 200G-PON Burst-Mode Transmission Over 20 km With Class D OPL and Quadruple PON Coexistence"
- "100 Gbit/s Bidirectional Transmission in a Single Fiber with Twin bidi Transceivers"
- "A Zero-Electrical-Power Silicon Photonic Ternary Content Addressable Memory Bank"



## OCTAPUS at the IOWN global forum



OCTAPUS was presented at the Innovative Optical and Wireless Network global forum in Open All-Photonics Network Architecture Task Force meeting on April 27, 2026 by Fabienne Saliou.

# Communication activities

## Communication channels

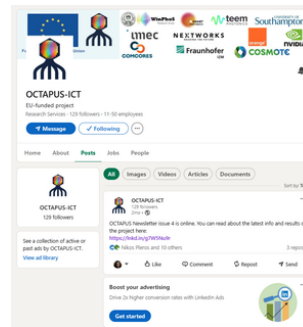
### Website



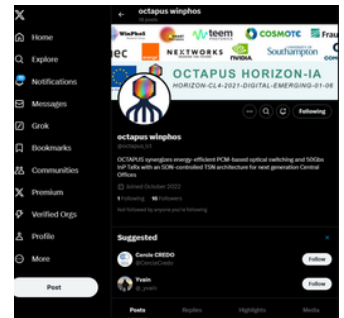
### Meta (Facebook)



### LinkedIn



### X (twitter)



**Website** (<https://www.octopus-ict.eu>)

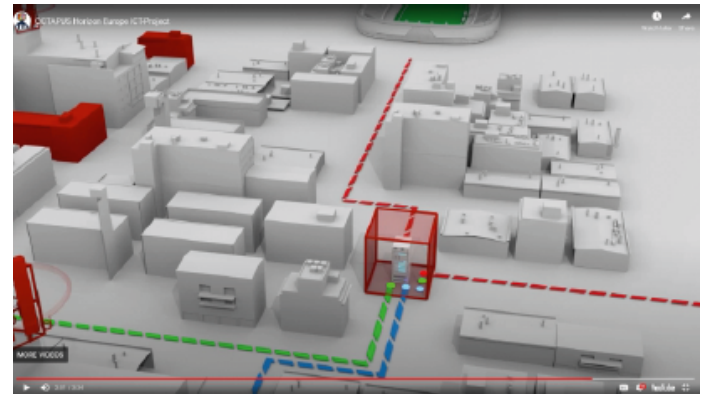
**LinkedIn** (<https://www.linkedin.com/company/octopus-ict/posts/?feedView=all>)

**Meta (Facebook)** (<https://www.facebook.com/octopus.ict/>)

**X (Twitter)** ([https://x.com/octopus\\_ict](https://x.com/octopus_ict))

## OCTAPUS Video Presentation

The video presentation of the OCTAPUS project, highlighting the vision and objectives of the project has been released on YouTube. Watch it [here](#) or scan the QR code:



## OCTAPUS Demo Video

The video presentation of the OCTAPUS Demo that took place at the facilities of Orange in Lannion, France. Watch the video [here](#) or scan the QR code below:



## Consortium Meeting

### M39 Consortium Meeting

The 7th General Assembly meeting of the OCTAPUS project took place on 19-20 of November 2025 in Lannion, France. The meeting was hosted by ORANGE. The consortium presented a summary of the key achievements and the development of the prototypes. In parallel a demonstration experiment was also set-up, integrating part of the OCTAPUS technologies.

