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# Consortium

11 partners

9 countries

2 universities

2 R&D centers

7 companies

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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# Factsheet

**Grant agreement:** 101070009
**Programme:** HORIZON-CL4-2021-DIGITAL-EMERGING-01
**Duration:** 01/09/2022 – 28/02/2026 (42 Months)
**Budget:** Overall Cost: € 5,883,941.25
EU Contribution: € 4,789,661.00
**Coordinator:** Aristotle University of Thessaloniki, GR
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Dr. Marios Gatzianas,
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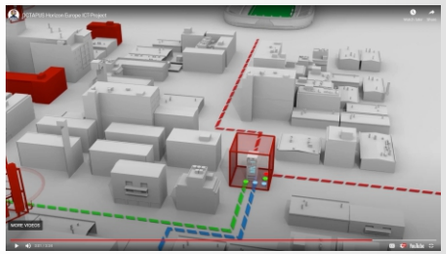
## OCTAPUS Video Presentation

The video presentation of the OCTAPUS project, which highlights the vision and objectives of the project can be found on YouTube.



Horizon Europe
EU Funding Programme

# OCTAPUS

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

HORIZON EUROPE
The New EU Framework Programme for Research and Innovation
2021-2027

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# About

## Concept & Vision

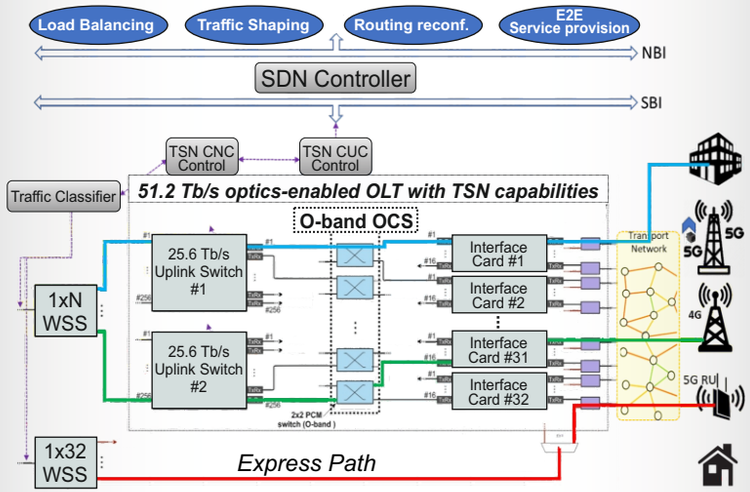
The goals of the **OCTAPUS** project:

►Increase of (switching) capacity at the Next Gen Central Office (NGCO)

►Efficient support of Disaggregated RAN (i.e. Fronthaul and TSN) and URLLC services.

►Consolidation of SDN with NGCO PHY layer

►Increase of energy efficiency




## Mission & Aim

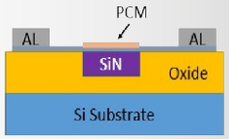
**OCTAPUS** aims to deliver an agile, low-cost and energy efficient PIC technology framework that will re-architect the Next Generation CO ecosystem, transparently upgrading its capacity to 51.2Tb/s and beyond, through an innovative optically-switched backplane and transceiver toolkit

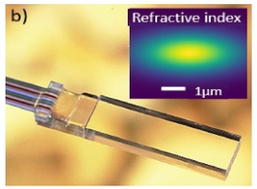
# Technologies

## Hardware

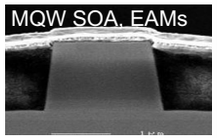
OCTAPUS combines the following novel concepts/technologies:

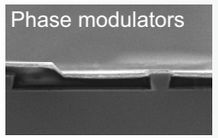
►Sb phase change materials (PCMs) to develop zero-power and ultra-low loss SiN-based electro-refractive switches

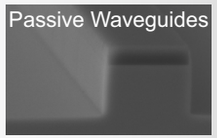



►O-band 50GHz component to demonstrate up-to 800G optical transceiver engines with Glass WAFT interposers



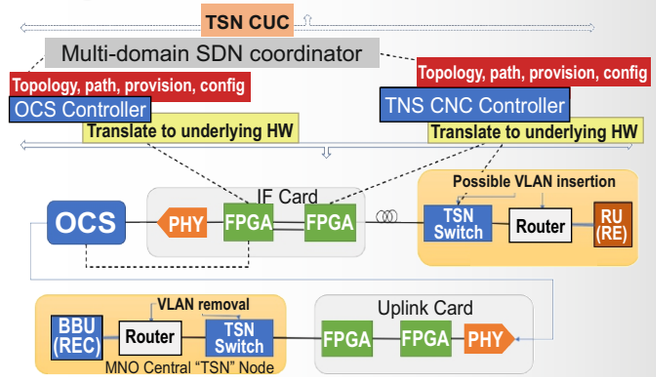




►Low-power Driver/TIA Electronic ICs for 50Gb/s EAM and PD arrays

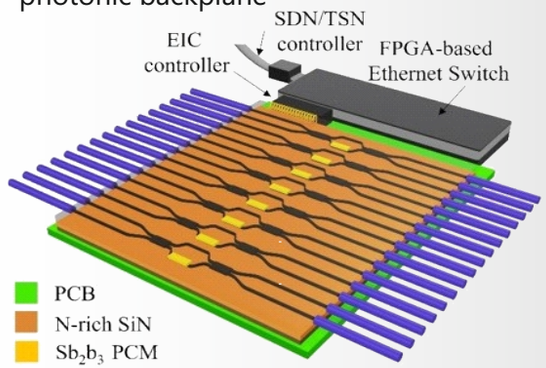
## Software

Development of Time Sensitive Network (TSN) technologies and integration with programmable multi-domain SDN Coordinator for end-to-end configuration

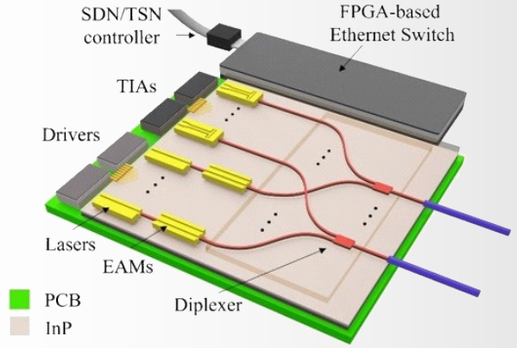


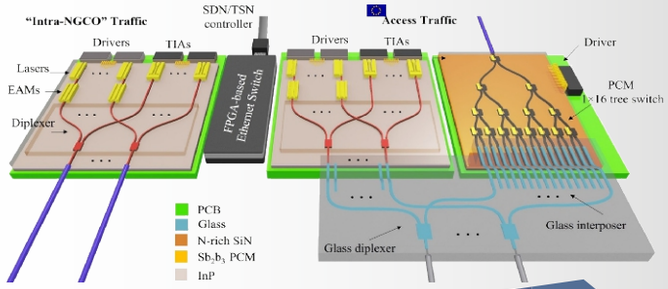

# Prototypes

An SDN-/FPGA-controllable 16×16 OCS-based photonic backplane




A TSN-enabled ULS prototype with 800G (16×50Gb/s) TxRx intra-NGCO communication




A TSN-enabled IF-card prototype interfaced intra-NGCO 800G TxRx & 800G PON TxRx